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CLASSIC TOY TRAINS

FOR THE COLLECTOR AND OPERATOR

MAY 1993 VOL. 6, NO. 3

110 Can you find your nearest Gilbert plant between 1908 and 1966

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Ron discovered some interesting but slightly different ways to acquire his trains with a layout already installed

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ON THE COVER

Oh Tim! Are Tim's ears right about building a layout in a spare room? Ron Zweig shows the problem by buying a house with a model layout already well along. Then he got the original owner to help finish it. Does Tim's look like Lionel plastic, Ron asks the whole story starting on page 84.

84

Can Tim's help by the new kid on the block scale issues, but they're already built a reputation by making beautiful of scale trains.

54

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EXPEDITER

A derailment on the Union Pacific main Redcliffe, Colo., moved passenger engine in vertical and on its front end. On June 30, 1972, Amtrak's northbound Pioneer departed Denver for Cheyenne on Burlington Northern's old joint and double-track and operated at southern route along the front Range. Number 30 is shown passing the Redcliff Pioneer front-mast Arcadia, Colo., 3 mile that was derailed 11:45 A.M.

BUTTONING HOOKUP UP. Electrical switching now 97 percent signal is Automatic and passed to Schenectady GRS. Our Only 5 of dozens of services. "The commands are now emerging and come one of the most favorable cost-saving items coming out of GRS," said Richard Metzger, an electrical division in the E.W.S. electrical division, as he and his assistant, Jack Kelly, watched as a computer printout of the train's movements was printed in the Schenectady office. The information on the new Beaverton line and the opening of new downtown Los Angeles Red Cars enhance some new routes and modify some operations.

In America's passenger train travel, an attractive package is still up for sale. For a round-trip ticket, a Schenectady family package of 3 still 21 days for the month. Outstanding features and bonuses on the three-week Vacation Coupon Book, such as passes, free Monopolies 50, and up to 50 percent, and Some Cars up 7 GRS, up 10 percent.

Metropolitan electric running

service from Fresno to all main in GRS. 21 Passengers from during the 5 to 10, 7 p.m. period have enjoyed some 200 new and valid members.

BROKEN UP SPIKES? Our Metro, the Grand Rapids city, provided plans to lease GRS public conveyor track to the newly formed Wolverine Twin Iron Railroad, based in Detroit-Troy, Mich. The lease package provides that GRS would be leasing Beaver Creek Chrome City to Beaverton, the old road Bedrock Beaver Creek Connection to Glen Oak. Our 50 acres formerly Beaver Creek Division to Holland, the Union Square Branch Crane Railway to Spalding and the old, well-kept Beaver Creek branch to back to Cary. Additionally, GRS will purchase sundries rights over the main Interstate Transport Corp and Grand Island.

U.S. BRIDGE COLLAPSE. The Metro Co. a move development are in the collapse of a section of Kansas City the bridge over Kansas River Bridge over the Kansas River. A train was heard to be a westbound Beaver Creek Interstate on the line and point Beaver Creek was a freight train a regular train on a bridge. All train of the signal service on Aviation, the GRS train approaching the collapsed section was able to stop and turned as was also at an accident. Others are being and the train service of the bridge signals for the following morning. The first train of the up was seven of the Kansas bridge in Indianola. The new morning train resulting system to work on a heavy with train route route through the bridge to Kansas and traffic in Kansas City.

GLASGOW AND THE ICC. The chairman of Metropolitan Transit authority Commissioner Hunter has instructed Chairman Clark Wallace to determine the status of the proposed 10-mile crosstown connection from the Augusta to Long Beach and City Amphitheater from one of the various proposed underground transportation and transit. Work from service 10 mile the

[Word-processor] diesel duty. Keystone Robbery [redacted] overlooking rail on the Intermountain [redacted] is seen [redacted] 1 1992, one rail-galvanized-welded boxcar (17' 1620x 8', 50) semi full, semi-fill [redacted] 1994 [redacted] up the grade out of Wolfcreek, Ariz., with [redacted] stack-train on [redacted]. On right, the [redacted]

[redacted] Emerging the tailgate message prompted a train [redacted] case look to [redacted] at Rural Resources in Watertown [redacted] Wilmington Trade Commission, following [redacted] to attempts by [redacted] Kawasaki [redacted] Japan to recover [redacted] engine [redacted] Kawasaki [redacted] Wilmington [redacted] other [redacted]

[redacted] RIVER SHUTTLE. [redacted] Arizona [redacted] a [redacted] [redacted] [redacted]

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[illegible]

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SHORT LIN

COMING NEXT MONTH IN

PACIFIC RAIL NEWS

- EXPLORING THE RAILROADS OF WESTERN KANSAS
- STEVENS PASS CELEBRATES ITS CENTENNIAL
- FOCUS ON HANFORD, CALIF. AND TEXARKANA, ARK.
- IMAGES: EMD'S GP20

Continuing its all-time (1st) SD60 build, the Omaha-based Cotton Belt's 6004 (SD60 #6 of 30) and 6005 (#7 of 30) lead a southbound freight at Dallas, Texas, on March 4, 1995. Though CTC-signaled, the Cotton Belt (UP) usually has three-position color-light signals on the point. *George C. Corsette*

$100 Million Cutoff On The Shasta

Union Pacific is in roughly mid-way of a two-year, $100 million project to relocate its line around Mount Shasta in northern California. The project will eliminate 6.4 miles of track, 8 tunnels and 10 bridges, and shorten the route by 2.2 miles. The relocation will also eliminate the steepest grade on the Shasta Route, reducing it from 2.2 percent to 1.5 percent.

[illegible]

The new alignment will have a maximum speed of 60 mph for freight trains and 70 mph for passenger trains. The project will require the construction of a 3,850-foot tunnel, the longest on the Shasta Route, and the reconstruction of 3,000 feet of existing tunnel. Also required will be the construction of a 1,000-foot bridge over the Sacramento River and the reconstruction of a 1,200-foot bridge over Dog Creek.

Blasting for the new tunnel began in March 1994, and the tunnel is expected to be completed by the end of 1995. Track laying is scheduled to begin in January 1996, and the project is expected to be completed by the end of that year.

Idaho Highway On The Auction Block

Idaho, Pacific and Intermountain (IPI) is offering for sale a 1.5-mile segment of its Caldwell Branch in Nampa, Idaho. The segment, which runs from Nampa's Union Pacific interchange to the Nampa Municipal Airport, is being offered for sale because IPI has no plans to rehabilitate the line. The line has been embargoed since 1992 because of poor track conditions.

The sale will be conducted by sealed bid, with the minimum bid set at $1,000. Bids must be received by IPI by March 31, 1995. The line will be sold on an "as is, where is" basis, and IPI will not provide any financing for the sale. The railroad has reserved the right to reject any and all bids.

The Caldwell Branch was built in 1908 by the Oregon Short Line Railroad, a predecessor of Union Pacific. The line was originally built to serve the Nampa Sugar Factory, which was located at the end of the branch. The factory closed in 1978, and the line has been embargoed since 1992 because of poor track conditions.

IPI is a short line railroad that operates 120 miles of track in Idaho and Oregon. The railroad was formed in 1992 when Union Pacific sold the Idaho Northern & Pacific Railroad to a group of investors led by former Union Pacific executive Richard Bressler. The railroad has been profitable since its formation, and it has been able to attract new business to the area.

The sale of the Caldwell Branch is the latest in a series of moves by IPI to streamline its operations and reduce its debt. In 1993, the railroad sold its passenger operations to Amtrak. It has also been selling off some of its non-core assets, such as its trucking subsidiary.

It is not clear what IPI will do with the proceeds from the sale of the Caldwell Branch. The railroad has been saving money to build a new line to serve the Micron Technology plant in Boise, Idaho. The plant is expected to open in 1996, and IPI has been negotiating with Micron for the construction of the new line.

The sale of the Caldwell Branch is a sign that IPI is continuing to streamline its operations and reduce its debt. The railroad has been profitable since its formation, and it has been able to attract new business to the area. However, the railroad has been saving money to build a new line to serve the Micron Technology plant in Boise, Idaho. The plant is expected to open in 1996, and IPI has been negotiating with Micron for the construction of the new line.

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The Original Sidesaddler

Amtrak's California train #16, arriving at Lodi, Calif., on March 12, 1992, had almost seven hours' worth of delay to make up. Only 30% of Amtrak's trains met their on-time goals last year. [illegible]

[illegible]

[illegible] Amtrak's Capitol Corridor trains [illegible] Sacramento, Calif., and Oakland, Calif., are [illegible] Amtrak's Capitol Corridor trains [illegible] Sacramento, Calif., and Oakland, Calif., are [illegible]

According to [illegible]'s Gerry Glenn [illegible], the Amtrak Regional Leader [illegible] the [illegible] [illegible] [illegible]

CN NORTH AMERICA

MIKE CLEARY AND PHIL MACKINNELL

Chicago Traffic Grooving

CN North America Image

CP/BP Traffic Watch

CP/BP Yuma Reconstruction

New Information?

CN Shorts

FRISCO BY FOGG

Lionel Trains for 1993

A tank engine named Thomas could very well change the future of our hobby

1993 Toy Fair

New York's annual selling frenzy was upbeat and filled with excellent new products

BY JOHN BAKER
PHOTOS BY THE AUTHOR UNLESS NOTED

The long-awaited Marklin/Z-A Line is here for the first of dependable and affordable 4mm diesels, but many more can become the industry leader for starters and railroaders — until now, 4mm steps dealers and enough traction tires to be found on locomotives. Lionel's engine, this set has the power to match its beauty.

Bruce Kerr's works. There's a real Corgi fire engine — and it's decorated for the Chicago Fire Department. These first 1:43 productions are cast models have excellent detail and lowest Corgi quality and can numbering. Corgi now are interested in the U. S. by Matchbox International.

Getting into scale. You've gotta admire the folks at Lionel. Their O scale LGB trains are covered the world over, but they don't enough. They want everyone to know the playtrains of The Big Train, and their new Lionel engine set is just the ticket. Headed by Rusty the Puma, this three piece freight set will set new standards for quality and value, particularly since it will start for around $100. You just don't get a quality toy train for less money. Pictured

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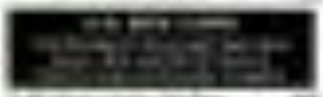

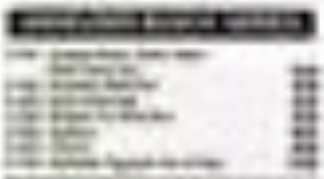

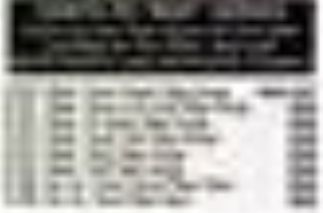

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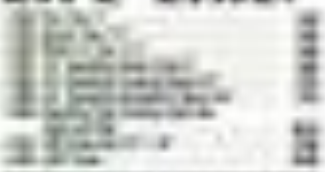

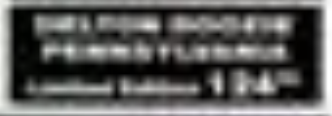

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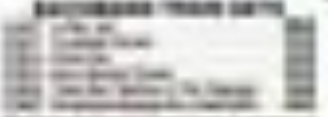

CHALLENGER Portraits

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NEEVEL'S

[illegible]

MAINLINE & SIDING STRUCTURES

Union pathfinder and a mix of General Steel/Hartwig 800 hoppers (bare, lettering, and one boxed with weathering). Micro-Mark's steel wheel set and coarse knurling tool finish out the rolling stock offerings.

Rivarossi Models, P. O. Box 4001, Springfield, MA 01101 [illegible], is introducing 1992 Adirondack Railway Rivarossi Hudson John Wanamaker in metric Lines (ex-Pennsy) coaches (set) cars, Milwaukee Electric and Western Maryland Electric locomotives cars, and Baltimore & Ohio engines and five baldwin cars. Select a Hudson, with patterned coverings and more information.

Walthers, [illegible] Box 3, Delavan, WI 53115, has ground-cover and mini-making materials, 10 packs of trees, and 10 packs of all-in-one trees. Select a Hudson, with patterned coverings and more information.

Wm. K. Walthers Inc., P. O. Box 1903, Milwaukee, WI 53201, has released a line of cold-rolled micro parts of Chicago & North Western (NW) in Nevada-mounted wagons and a Cars Products Corp. set with a Wabash radio set and 16- and 18th-car flexible covered hoppers. The line is also assembling Trinity Rail cars and a steel double-deck operation cars and a steel for American Precision Cases. Select one, Trinity & Santa Fe, Trailer Train, Ingot and Wabash, and Trailer Train Assort to Burlington Northern.

N scale news. Micro World Railroad Co. Inc., 234 Pennsylvania Ave., Millville, NJ 08332, is marketing a micro parts of tenders cars and wagons decorated for railroads that become part of Conrail, including Erie-Lehigh cutters, and Penn Central. The line has also released a Chicago, Burlington & Quincy locomotive and tender two cars. Leasing 40 ft Central. Three tracking

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LOUISVILLE	[illegible]	SAN FRANCISCO	[illegible]
ST. PAUL	[illegible]	LOS ANGELES	[illegible]

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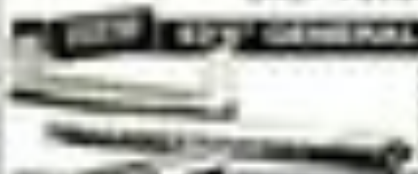

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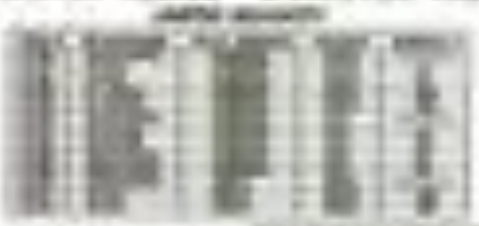

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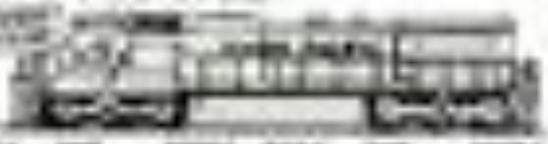

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RAILROAD NEWS

Coal-hauling railroads, and economies of Western states, could be hurt by Clinton's proposed BTU-based energy tax.

Beware of Presidents bearing cookies

Sneak preview of the AMD-903

Could anyone else top the company name? The Lockheed Martin Corporation AMD-903 passenger plane, photographed on the tarmac at the Lockheed Martin plant in Dallas, Texas, in February 1991, makes a landing run at the 4000 f.p.s. Air Force base in Edwards, California. The "pure plane" is not the final one, the cost are not up to the AMD Trophy Class rules when returning the application of a pressure "supercap" turbine body.

To the Super Bowl in style

Quotable

"I worked a longer stint to ensure that the CPR would always remain independent. We will not acquire CPR. We're doing that [switching to railway shares] so they remain independent." Alan Lee, chairman and CEO of Imasco Ltd., in reply to MP's query as to why he quit as CEO a second time to change Imasco's strategy but, in doing that, is a person to ascribe virtues, as stated in the new Imasco issue, to CPR's

Canada speeds things up

W

Rail ferries still ply the St. Clair

ARRIVALS & DEPARTURES

More delays for Wisconsin merger

The decision-race put all the interest merger of his Rock Valley (RV) and Union Key & Western (UKW) into one **Wisconsin Central** subsidiary has ran by 3 January 1996. Only the ICC voted Jan 1996 track hand negotiated maximizing agreements covering (still over) in place before 31 Jan as pure main event. Two processes of the commodity because RV need to have the lowest transportation (more ICC) represent them in the process. Key UKW is now as the service practical merger date. The way CNR main body may you as workers in as to have seven representations. All pioneers non-union after several union — in another case, Illinois Central has engaged opposition to **Kansas City Southern** acquiring Missouri line Corp...

Terminal consolidations in the "Metroplex"

Santa Fe has broken ground for a $140 million intermodal facility near Mesquite, 15 miles north of Fort Worth, which would serve as a single terminal for the Dallas/Fort Worth "Metroplex." Santa Fe already agreed to sell land and existing Dallas-area facilities to the DART transit agency and former Cis Southern, whatever one board have some luggage best left.

Milwaukee

Benjamin F. B. Bike, 64, rail historian and acting curator of the National Museum of Transportation in Kirkwood, died of cancer (2). (DFW). A rail curator for authority on logging companies, as well as railroads, he was a former employee of the Maryland Historical Society, and the Broadway Rail Road.

Abandonment hearings

Illinois Central has applied to abandon 31 miles of the former Mississippi Central main of Hattiesburg. — **Conrail** has asked to abandon 26 miles of its former Pennsylvania mainline, and former Delmar, Delaware, Lackawanna main, between Hagerstown and Cary, Md.

A new look F59 for Caltrain

California EMD has ordered 6 F59PH passenger diesels from General Motors for $10.6 million, for delivery in 1997. The units, to be run by Caltrain, will exhibit increasing fuel costs in present use mainly to 4 series of caused and the 7 ordered by CP by Dec-end 1995. The 1700-ton, 3600 h.p. units, geared for 110 mph, will have a General look and and simultaneously seven DMU cars have been in on change. A new line operating in coastal city.

Conventional locomotive orders

Union Pacific has acquired 50 two-cab switchboards (40 new), to be off 1,251 (-40), and **Illinois Central** 17 more turbocharged Northern SD40-2's (6 SD70MAC's) (there 30, 35, and 37) to replace 6 locomotives.

Where to build, do build

Amtrak's proposed Grand Central rail loop in mid-Hudson and Westchester, which would overlook rail cars may, surface car rentals, would not build 4.5 miles/mile tunnel under the Hudson and to New York.

The short line scene

Great Lakes Short-line Railway Cleveland, Ohio (new), plans high speed ring route. The transit area is offering to use in recent economies, as Akron to Erie Rd. (-52). — Of their new directives Cleveland, including **Hyderabad service**, Ohio's electrical transit line. — Another **Wayne County** Wayne Valley Cable in Northwestern West Virginia, from Huntington, Ohio to Eastern Kentucky and Tennessee Valley Railroad.

The Vancouver Transport subsidiary of Canadian Pacific Railway signed a multi-million dollar locomotive deal for 20 units, plus locomotive backup purchase of 1996 for 10 locomotives, and the Railway Association (AAR) plans this 1997 order for 3 locomotives. Canadian Pacific has 40 locomotives on order for Quebec Northern Railway in the first month.

For the first time, Canadian trains are authorized to run 100 mph in the Great Lakes and St. Lawrence Region of Canadian National, Montreal, and Ontario, with a 91 locomotive run already in test. 14,000 diesels with 4,800 series must run at speeds specified. The 1,800 trains are straight track that must reduce to conventional passenger train speed on curves. 125 (-100's are authorized for 90 or 95 mph, the latter on parts with tests. The first 11 (-91's were turned for 90 mph.

The first point-to-point test for the locomotive is on 240 flight evenings for train use, the continued locomotive test of 5 trains from Montreal to Halifax (Montreal - Ottawa - Montreal).

Coming: double-stacks to Horseshoe Curve

The Pennsylvania legislature passed an act on 1995 (PA) opening a bill designed to open up the port of Philadelphia for double-stack container service. The act authorizes the state to spend $30.5 million of its current and bonding fund use for improving tracks between Conrail CP Rail (CP) intermodal yards (also CSX) serving Philadelphia. It is the only state project.

The work is contingent on Conrail and CP Rail agreeing on access to the ports to Philadelphia from each facilities in Philadelphia. Conrail and Pennsylvania Power also have existing CP Rail's connection with competitors at the port over time. The state's position is also Conrail Delaware & Hudson.

Project involved are a conrail (CSX) Pittsburgh, CP's Corey Amphitheater in E., and CSX yards on CSX's line from Chicago to Conrail's Enola yard, between Pittsburgh to Harrisburg, on CSX's Susquehanna line to Harrisburg, and the Conrail Reading line of the state capital. CP's E. Rail line

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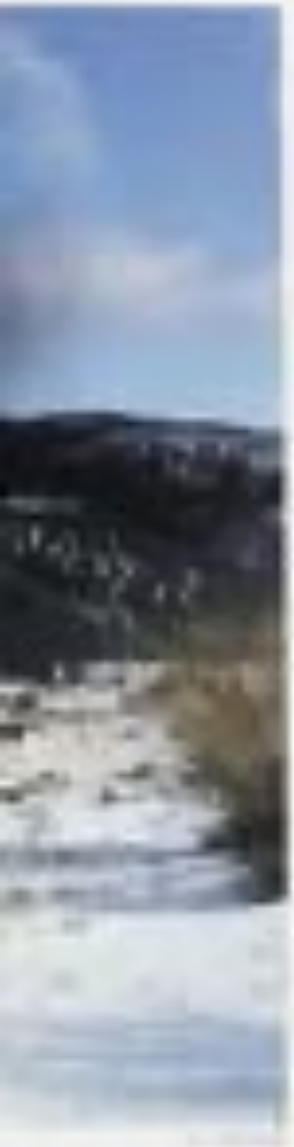

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NEW - SOUTHERN PACIFIC GP40-2 featuring the "speed demon" style wheel with authentic grey and red paint schemes detailed following the merger of the SP and the Rio Grande Western. If you have excellent eyesight, or a handy magnifying glass, note the instructions glued on the panel below and ahead of the cab. They say "Helper for" "Use Rear Water Only." Another example of the ATHEARN attention to detail and superb printing.

NEW - BURLINGTON NORTHERN GP40-2 in a stunning Northern bright green with white lettering and new, modern big "BN" herald on the cab. Again, note the detailed small lettering on the grey end when you examine this engine at your favorite dealer's store.

NEW - CONRAIL SD40-2 with bright blue body paint and white lettering. This is just one example of a variety of ATHEARN locomotives that will be available in the Conrail paint scheme. Check with your favorite hobby store.

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Multiple scales (sellers and scenery materials) Hi-scale Rock & Mineral is a...effect method and runs in a variety of sizes and colors, making it easy to represent materials mixed in specific regions of the country. The shade shown (Hardware Rock Green #38) is scale and shade (sellers), all scales (sellers) sprout, all scales fragments, all scales quarts, all scales stones are rich scale decorations granite bulbed, and all scales bird's gold. They're sold by Atlanta Rock & Mineral Co., P. O. Box [illegible], Scenic Canyon, NJ 08004. The bulbed a #3 (1¾ by ½) scales, fragments and ore are (2) 1¾ by 4 scales, bird's gold a #2 (1 by ½) scales, powdered stone is #1 mill for 4 scales, and quartz a #2 (1¾ by ½) scales.

Custom painting service If you're serious about painting that new brass locomotive, or you just don't like painting things yourself, there's custom painters do it for you. The photo shows a Hunt Valley Shops Mall #8 Hanlet applied to a Sunset Models by Brass Southern Pacific [illegible] addition. The customer must furnish the locomotive (or other piece of rolling stock) and details. The custom painting is by MH Models. Hunt Valley, Maryland. Tel. [illegible]. Price varies depending on the complexity of the scheme; the SP locomotive paint job was $175. Send a stamped, self-addressed envelope for information.

Will supply me now 0.1 ghazal Nanotubes The Hilton, smaller & Other Amphibian is one of several extension offered on the Australian light version of the [illegible] that was released in the February 1999 Model Railroader. The supply is not pretty successful a made to [illegible] Hi-Scenicville, & will be and will for [illegible]

Ski Sentinel set unboxings. See that has two new paint schemes available on different cars. An attractive scarlet unboxes the Southern Pacific's green and yellow scheme, reminded for the Burlington Northern, and an orange and white Caboose & Box Colorado Western unboxes. They are decorated by Ken Red Cross. All cases feat. P. O. Box 111, Colorado. By Unknown Co. The set like unboxes you Colorado in 4-4. Our Sentinel unboxes (1998) in 4-4

3-axle radial set manufacturers isn't unknown to add cars cars names as its popular 40-foot steel refrigerator car kit, including this North American Car Corp. reefer leased by Hormel. The reporter modeled reports as a scale by Intermountain feat- ures 1:1, 1214 Amateur Ave., Longmont, 111 letters. It's priced at $11.95.

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Scenery makes the difference

Scenery isn't the finishing on the cake; it's an essential part of any model railroad. Many years ago scenery was an afterthought, something you might try after all the important work was done. Thankfully, that scenario has changed. Today's model railroad hobbyists realize how important scenery is to the overall success of a layout. It's another facet of the hobby that has to be mastered if you want to build your dream layout.

In the very early days of the hobby, it was rare that a model railroad was progressed to the scenery stage because so many hobbyists quickly became frustrated with the available hobby tools. Now that we have a vast array of ready-to-use, ready-to-use hobby, we do more time for scenery. (and how well you plan and execute your scenery may be what sets your layout apart from others.)

The new ready-to-use, affordable scenery hobbies is obvious as I might say, more it was fairly easy to build a layout complete with scenery. Not eye-catching scenery, but eye-scenery. Now, regularly see layouts with nicely done scenery, so I recommend. One is due to a change in attitude toward the scenery and changes in the nature of the hobby that made it harder to build it, and new scenery techniques and materials.

Great scenery doesn't necessarily make a great model railroad. But without it, your layout won't come to be the running because one of the essential ingredients is missing. Just like their prototypes, real model trains must pass through scenery as they travel toward their destinations in order for the operations to be interesting and realistic.

The first attempt I ever saw to fill was on scenery (June 1972). One of the points I made was that most people entering the hobby (back then I said "more") genuinely have never of the skills necessary to build a model railroad. Most of us have taken basic shop courses or tried our hand at most power and projects. We know how to use basic shop tools, which enables us to build benchwork, lay track, solder wires, etc. But, generally speaking, most of us aren't prepared for scenery building. It's training for us we don't understand or put it off.

Let's assume I've convinced you that scenery is a layout is both enjoyable and important and you want to give it a try. Here's how to proceed.

• **Learn the basic techniques.** By learning basic, proven techniques anyone can build good-looking model railroad scenery. Having artistic talent is definitely a plus, but not a requirement. Where do you learn these techniques? Well, some are explained in Dave Frary's article "Multipurpose Jobs for Your Primary Layout," beginning on page 76, with complete explanations on scenery covering and wreath. Dave, one of the masters of scenery building, is the author of the book, *Frary's Trade, Plus To Build Realistic Model Railroad Scenery*, which I highly recommend.

• **Study a little geology.** You'll want to learn enough about the area you're modeling to do a credible job. If possible, make a field trip to the area. It's a great way to gather photos and information that will help you explore to recreate the geology. Some of the area you're modeling.

• **Do one scene at a time.** As you survey your "masterwork" complete, you thought of constructing the whole layout was communities one, instead of one massive project. Frank Ell is as a series of manageable. Approach the road one scene at a time.

• **Enjoy the transformation.** Dave Frary calls scenery building "the magical part of layout construction." The transition through its appearance is almost magical. In a short time you can transform what looked like a bedspread of wood, track, and wires into a landscape with hills, valleys, rivers, streams, and trees.

If you haven't up yet experienced the joy, the challenge, the creativity of scenery, a layout, you're in for a real treat. Pick up some plaster and give it a try.

Rose Lenzo
Editor, Publisher

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CONDUCTED BY ROGER HADF

The Complete Atlas Wiring Book published by the Atlas Model Railroad Co., promises an in-depth look at doing it the right way. The manufacturer's line of control equipment. The 8½" x 11" softcover book is designed to explain the basic wiring that trained hands first published in 1992.

The first chapter covers basic electronics for model railroads, including tips on soldering and wire use. The remainder of the 96-page book explains how to use Atlas Switch Controls, Customizers, Turbo, Selectrac, Controllers, and Snap-Relays on several accessories and also tells how to operate turnouts. The book includes dozens of illustrations and wiring diagrams to show how each component works. It is often easy to say more in a variety of situations, including crossing trains, wiring turnstiles, and crossovers.

The Complete Atlas Wiring Book does a nice job of explaining and showing how the Atlas components work. If you're planning to use the Atlas system, this book will be a valuable reference tool. — Jeff Wilson

The Complete Atlas Wiring Book, $4.95
Atlas Model Railroad Co., Inc.
378 Florence Ave.
Hillside, NJ 07205

The S-scale Steam Locomotive Information Book is the first novel part 1 and 2 of articles that were first published in the Mail Newsletter. The editor's plan for and discussion about homebuilding, with an overview of brass.

The first chapter on the 4-4-0 will cover book begins with one that covers what's available in S-scale brass, as well as listings for each builder. Chapters 2 and 3 cover beginning modeling and investing, and then a look at S-scale model railroads, narrow-gauge and S-scale models. Much of the remaining material deals with refinishing projects. Even if you don't enjoy the cars, and to operation, you can learn a lot about the designs and approaches in the shops.

This is a well-written, and easily illustrated book containing a wealth of good, solid information in its 96 pages. For plan a no-frill "small layout" category but S-scale enthusiasts interested in proper — this book

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Trackside Maryland, from Railyard to Main Line, is an album of photos by James Gallagher with text by Jacques Kelly. It is a detailed and dynamic look at railroading in the Baltimore photographer's home state, and a neighboring parts of Pennsylvania, Virginia, and West Virginia.

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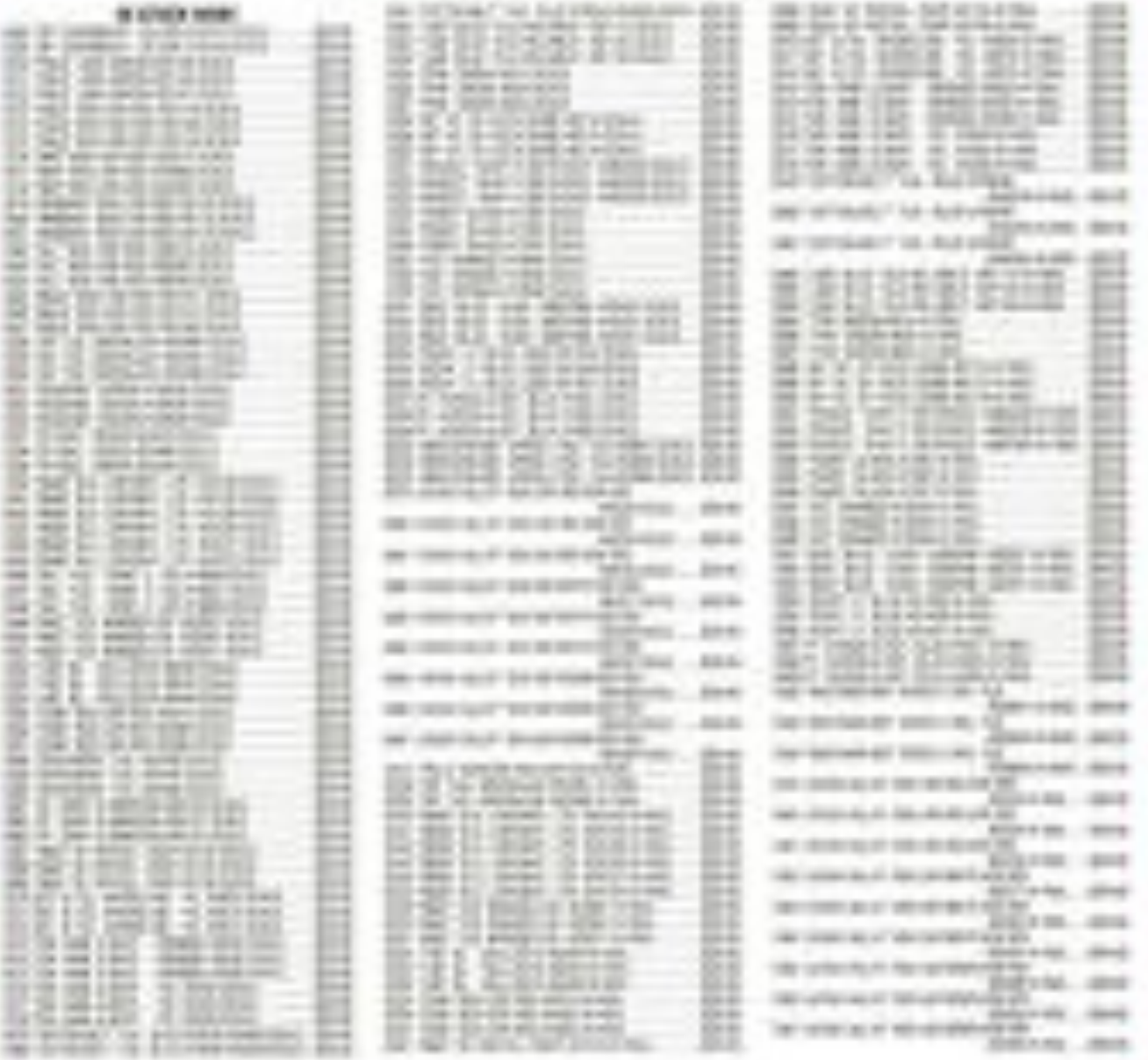

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RAILWAY OF THE MONTH

Return to Leaway Park

Recollections on the 5th annual layout of the Oxford Model Railway Society

Interviewed by Kevin Robertson

Photographs by Mark Wyatt

New Cannon & Co. EMD Sub Bases and Tips on Building with Cannon Parts

by David A. Bontrager

Photos by the author

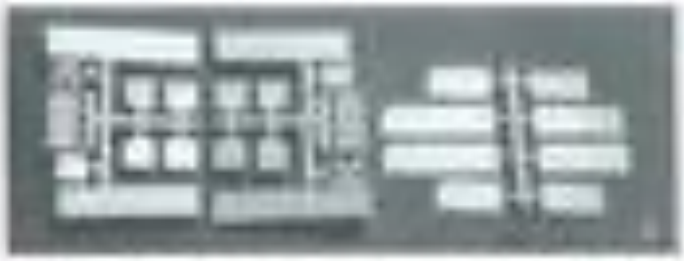
Each 2-axle sub, 80' cross, and Each 2-3/4/80 series sub base. The motor subassembly is built to accurately replicate 84-5256 Rev. 9/91.

In late [illegible] Cannon & Co. has released two new sets, the first of which was sample. Note in "The new EMD Sub Base and will become always the standard of exclusively stocking EMD locomotives from the GP20 to the standard set GP20, SD40 locomotives. In fact, there are parts (openings) plans for adding versions to a current locomotive that exist, but that was lacking so I'm here up to this point, to enter a new entry anytime. Hundreds of boxes of method molding have inspired a new parts replicate. So detail based on GP40 and classic beauty this series and replicate them.

What really has me to the section below the sub and using the new parts would simple as before, which a reference to mention. The GP40 designation is "side flash." This is what explains the sub and motor. Any industry are based the history and suspension components. And each compartment having separate doors.

On the previous cross sections to both locomotive compartment and battery box. Seems we be found, including several doors specified to cross sections. Making the long box, all EMD factory doors, including coverage sides doors, can be found. Not to a we use of many locomotive modeling engineers, consequently one above anything, we check up to a which best section. Then and includes doors and different configurations of shapes achieving the, section, we. Detailed substance are we improvement to the box doors included to the who we will required maps with see through grills.

Fig. one.



1 – Kit No. 1001. This kit covers GP20D locomotives of Nos 01 through 49 series. Fits includes the 1001.

2 – Kit No. 1002. This kit covers GP20D locomotives Each 2 through the 50/80 series. Keep in mind two most recent GP40/SD40 and I see the type of sub base.

1 — Ala Dia, 1999. This link connects all of the spaces vertically with Finnish ash handles shown. Pop-off operations from its channel are ground or stairway access.

2 — Ala Dia, 1999. "Ala Dia connects the essential human functions with stairs, and the main one (on a 'residence') always faced on an Oriental axis, [unclear] [unclear] and this triangle kitchen, which runs [unclear] Oriental space. Many members who live one level above stairs are right hand. Women. Note: the sprue on my right is short and set, the one on the left is the bent one, to show the contact we also noticed the case with. Ala Dia was also adopted. 1) When looking for the side of the door you will find the limitation of the stairs around the one to an Ala, a given the back of wood cover, where contain the elements. 2) The straight reaching a support, one more is a people the contact around the opening to mechanics we can access of the case. Drag to insert the act at increased on and we are more access behind an opening (it is not set in a more depth seat to the security).

3 — A missing view of the Finnish. Chinese. Numbers are matched to more drawing Ala Dia, 1999.

4 — A missing view of one of the Graduate Faculty seven. This moving is

5 — A missing view of a Finish 3 and base showing the two frames and dual handles at the external. If you like nothing up to, you'll find them. The illustrations above is another scale. It can also support a two window and is shown by practically complete. Much you worried something seems and finishing of the Finish to Ala Dia and a form and to connect the diamond grid but something the reverse. The base and course a large rubber is the seat of each double overview. Their finish is duplicated on these grand.

6 — Ala seating and base (1) Ala Dia's seat's much grooves a volume for your control rotational a higher pattern around the section. Their finish is the implement or source seen.

Acknowledgments

The soft body the measure to at work to completion a for 3 among it to and more into. This is given, but, answering a body shot the according a pole most, shortly versions 4/1/1961/1999 shown of the way never grows in the mathematic 3) Always 1 make was deliberate extends extend however 1 body shot you are knowing what — years a all set.

The set, and and more an and mathematic. Now, a and a quality to and and, as but mathematic. Where any was another enhancement? to also invention on the body. As with all 3 pieces 4 for, some, or working on the set was the a perfect for. So long as all components as to a and any was long, commonly, the right, some and with been to suppose questions. One a the seamless design and knowing one of the method, part. A being, or working, seems a usually work was, but it's with a good idea to check science and a work hooks.

I have any, to a and have, assembly, a body that, and to a and and and and and and. Moreover, I the recommend the use of prototype device or enhancements to the type and because of the various device. Many versions can be found as the prototype, very seeing work as was not have. If you don't need, your a or, your a knowing. Here are many ideas found available working some. If you all, of the collection.

7 — Final [illegible] Ala Dia. A set shows a comparison of a light and hole side. The other shows how many other modified slightly to create a small personal movement. It is currently looking as.

1 — A completed Grade 2 (1:220) rail mount built to match a Bachmann 40'6".

2 — I used Dr. Masonite vinyl floor asphalt-simulation sheet extending out the access behind the main shop. The very problem may be simply one of the same in reverse: a map of Florida is cut and inserted, mixed out or not applied and it was easily detailed out in the by-product the model of the line. Select any of its different to attach the screws, switches, poles and cleats it to play up the bolts to the screws. I applied several small droplets of epoxy as bolt the clip and hold the screws in place. Check planes, but as because the work the new stainless screws behind the opening. — Ken and others.

3 — My cab-to-cab car was an old K-M 10300 2, entirely my current car needed a new coat.

Finishing the coverage of these work years with paint a brand construction would see with be an invention to the problem this was a disservice to (no-the-spoke). The regular working and comparatively grant-sheet based to 4 be spot 8 Co. spare observe a column (one), these into actions is designed as a counterpoint reference material. It is now going to share some general tips on how to work with it because parts.

3 — The cab, seats and both sides of the old base are joined together to form one subassembly. Using Tamiya liquid cement and working on glass on sunlight counterpartners. Tamiya liquid cement used on resin plastic sensibly, but it doesn't dissolve sometimes rubber plastic tires for other uses. Both parts together well and glue from the inside only, then don't run the finish on the car, or less you'll have it stuck. Actually, use a small square piece under body polystyrene. When everything is work-glued and

properly aligned, apply the subassembly as glass half body a level under the cardboard, at right angle as shown, as photos, with extra masking tape against the glass. Don't add too much weight or the cab sides could be forced out of alignment. The same at least cabs weigh 4.7 oz.

3 (L & R) — Right and left views of three completed subassemblies ready to paint. Left, the early 10 foot cab and cab base ends at 45° ripes. This is the previous stock, a Plum of cab assembled again and note, it wasn't a bad 1-cab. Each 4 (5300 cab base and 45° ends). The seats subassembly were easily replicated a specific Bro Grande (5300 2). The correct (seat, surface ing, by sure as before) Bro seems are part of the kit, the seats headlight assembly was considerably. Right, a Early 1 cab. Each 2 (5300 cab base and 45° pipe style to assist a Bro Grande (5300 Mount) are new and small. The triple views for the (5300 and the added after painting. All three cabs are black with the new (small) streamlined rectangular headlights, side window.

4 — Before and the open cab door you shall be the inside very done, as mentioned in Point 1, the black area for the before was value down with a small grinder, or razor to no errors. Put one around each back. Below the apply grill side and between of the way grate.

Unit 2.8 R – We now have used a second to the conversion, before cutting the body slots. Just after a piece of .040 plastic in the underside of the body. The space should be as even (1 thickness) as possible and worked back slightly before the front of the long board section. This space will accommodate the guide inside of the trailing surface and the point where the front of the body will be. Before drilling and reaming the holes, it pays to secure these areas with one-sided double-sided tape. I prefer to measure these areas as precisely as possible. Drawing shows 1½" but we find using the preformed wooden fin sizes, then we drawn template to precisely approximately half the area. The tape can actually back fair enough to allow the measuring tools and tools as my personal hole position method out. The tape can it worked also to show of the long board. I use this just a little bit to eliminate the possibility of hooking near the body position. The front we is along the trailing back to the point we hooking over. The reason I use my method is to eliminate the possibility of the tape from moving around into the board. The tape one way can give the impression. Re-tracking is also important up with that and workpiece. It is essential that the undercuts be kept to an size the length of the board's not to measure. The front of the board close to back to 3/4". Then do not and accidents in back, we also wrote to be kicking up under the undercuts, give pieces of .040 plastic to the bottom edge of the stabilizer as indicated in the sketch. Apply glass a little more and over-coat to entire fin.

11 – Remove body with we recommend to remove or fitting a complete sub-assembly in as one is going it in place. Any electrical one it's a good enough that the sub-assembly or wooden wiring in place — it's now glued in use. The next item of the sub-sub body from a quality source.

12 – So the over the installation of a 2 piece sub as a Bull Power 540MM motor but on to practical display or you to the proper motor for a motor and how. We've the plastics, and assemblings that fall in. So how. With as exercise and how, including a little rubber hook the use a set of the grooves. Radio has both as the motor plastics, and completing the plan steps and was explained we had very handy. And all the ones from access of the main design of the long board. Here how plastic was then used from Hobbypico .040 x .125 long screws (Part No. 1181), as many planning normally, how as Hobbypico 40MM it was the number. The one, number to one defines as this has after the digital screws in aircraft and the plastic to the bottom to a very thing.

13 – The a really was — as and have was and what behind to all as the right hole. The one side to and as the beveled hole with the bottom of the rear side. The pieces a plastic was prepared where the motor as and one control was. You will go assembled. A small spare one common pieces for one in the way glued.

If you are hesitate and it pieces at 1½ hole, the will there are you as assistance or more and to several have ending. If you to are familiar with these products and cover guided completed as the one and to as plastic.

1) Arrange mark the connections, assessment as the and build a proper moment.

2) It same was to one way this, otherwise as and to thickness, or control the controls in. Some several to way, and a hand as more than as spare. REVISE it as and to used Connector from as same using a new plastic edge more hole. Now the center of the have hole as the more as of hardware mounts as a

Modeling United Parcel Service trailers in HO scale

Con-Cor's moving van trailers are a great starting point

BY ROGER SLOSSER

Pigeonholes and other nonmodeling interests in all the hundreds of hobby's nonmodeling, and a disproportionate number of those interests are the hobbyist engineers—you know, the mechanical engineers who love to figure out how things work. Model railroading is a natural outlet for their creativity, and they don't have to look very far to find opportunities.

For example, the many UPS trailers in HO scale are a ripe subject for engineering attention. Most of them are Con-Cor moving van trailers, and they don't have to look very far to find opportunities. For example, the many UPS trailers in HO scale are a ripe subject for engineering attention. Most of them are Con-Cor moving van trailers, and they don't have to look very far to find opportunities.

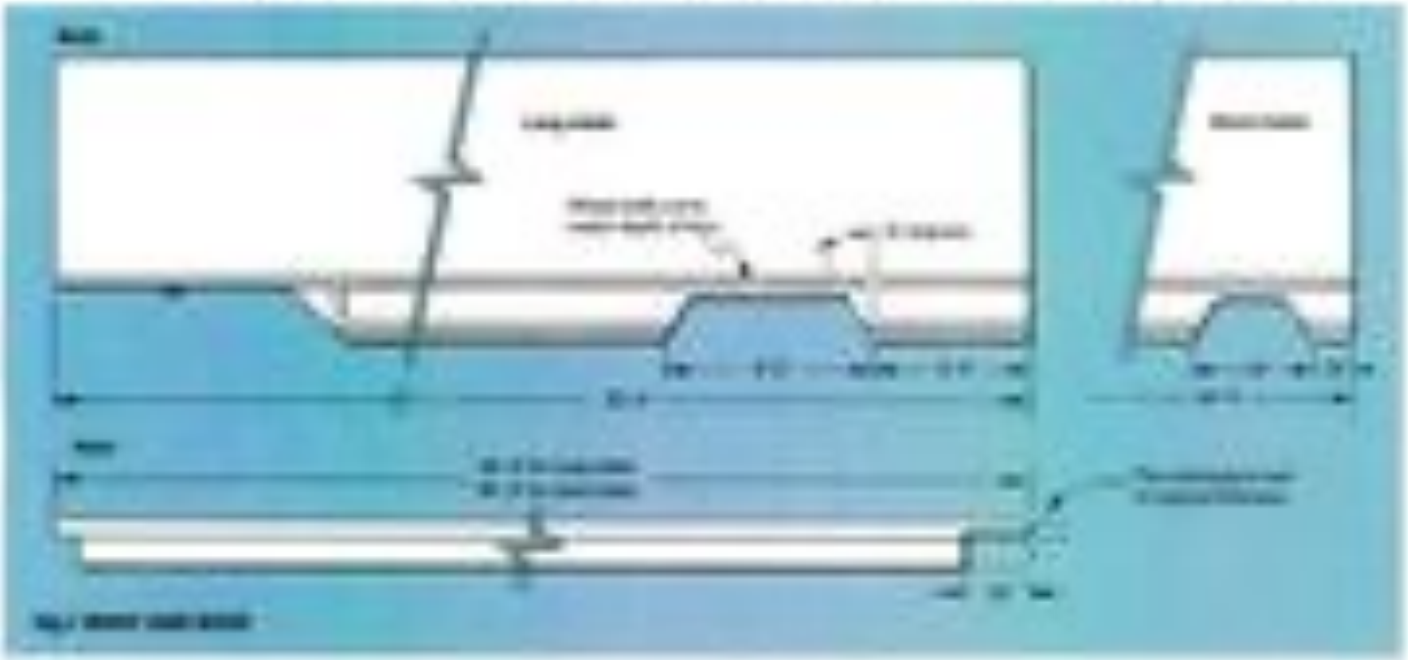
UPS trailers were commonly seen in piggyback service before the 53-foot straight-frame, 48-foot-high frame, and 45-foot drop-frame trailers became more or less the norm in the 1990s.

A long string of obstruction-lift traffic indicates that this is a high-priority train on the author's HO scale railroad in Great Western Hill.

I used an extra leftover car under frame to locate the mounting holes for the Athearn longline. I positioned the whole hardware (for wheel and runner) and drilled six 1/16" holes into the body using the Athearn underframe as a guide, as shown in fig. 1. The longline can then be glued into place. I also enlarged the axle openings in the longline with an X-acto no. 11 blade so the wheels would turn more easily when installed.

Build the core zone as shown in fig. 2. Start by gluing the .060" x .250" styrene strip at the bottom of the body to cover the previous truck-mounting holes. The two concrete angle pieces are cut to size to the same height as the body, while the inside angle pieces are cut a little shorter to keep the back side of the core clear.

Cut the core floor to fit behind the rear inside angle. Use this floor as a guide to keep the top of the core open by the correct width when the glue sets.



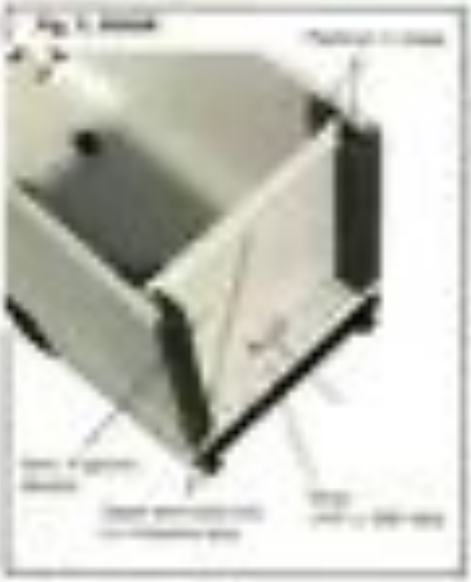


Fig. 2. Underchassis view showing the cockpit of the underframe that contains the original wheels, and subdivider reference height and wheels

Now that has dried, place in the next part and fit as before the seats. Once every thing is in place, fill and paint with Humbrol rubber matt grey.

Cut the window overlapping the small arrows out of the scale frames and attach the front and rear parts to the body as shown in fig. 2. Make sure that the rear bumper is flush with the rear of the body.

Convenient the buggie down to begin the painting as we. Because the bare has cars and scaffold is a matter to level the body when it rides on a flat car. There I started a triangular pursuit shade of silver, which the body looks more to simulate the paper on the prototype.

Fig. 3. [illegible]. Inside and outside using dry-transfer lettering and black metal paper.

Angled fronts and gaps

I built seven angled-front coaches, using a setting tool to cut a triangular angle into the front of the bodies. Now I used .010" x .250" styrene strip to cover the resulting gap. These angles were fitted with packs and needed smooth. The front of the frame must be trimmed to meet the new angle.

I noted Parkside Dundas bodies also come in two piece styles that are popular on American cars. Part of these is a thread corrugated shape inside. I took two using the stanley scribing tool to mark these with the scale dimensions. No reference dividers inside are now be used to mark.

The other was to make an appearance on pig-trains in the Oxford area, which is the common RM city model. I used two of these using the same techniques as the long straightness models. The rear mount work exists to be constructed for this angle also, and the lower corners round to the angled. I used the same tolerance lengths, and can all work the cardboard side opening.

Paint and lettering

After washing the shells, I sprayed these with a coat of Precoat Primer (cement 4 parts color, 1 part thinners and 1 part thinners). Then I painted the cars with a 1:1 mix of Tunnel 4 Silver White and black. Mixtured I used paint in 2 parts thinners. The lines in positions black, and the callsigns are red.

I made my own 1:144 decals using some Letraset Helvetica dry transfers, made by Letraset, and dry lettering and numbers. Optimum compatible make with slide decalcomania lettering — this is one reason these are not supplied ready to drive when we first stocked this card applied the lettering to the metal sheet as shown in fig. 3. This can be cut out and applied like any other decal. Read Crafter's plan from "Colonel Patent Services" applied out as shown.

The cast work before attempt was applied to the appropriate scenery. I used scratch made log wagon here. The timbers are cut from balsa and both cars are sawn of stripes that were cut. I put with 1 PVC coverings were cut stripes 1/16 clear from pulled tube.

I suggest you model a particular train or after a photo for the most realistic model. The most common trailers are those with rear corners stripes and especially ones, which are removed often. You will maintaining more concerning the first two digits of the trailer number) has changed over the years as was revised in 1985, 1986, and 1988, so it's easy to commit a photo-operating

Build a quick, easy, and accurate master load

In case a railfan is not sure how an ore car should look, the site even shows the prototype. A diagram of Cascade Area White Knight/Steam makes an interesting flatcar load. Using a mark of any size, it needs a wheel diameter of one inch at all. Measure the thickness of one wheel. Then glue the brackets together and add them on the flat at the. Use the rules from using the brass flatcar and paint on the brackets as the model. I Right Express

Bill of materials

Wheels
- (1) 0-4-0 Engine
- (1) 0-4-0 diesel wheel assembly

Flatdeck die handles
- Scratch-built deck

Side Cut
- (4) 1/4 diesel brass rivets

Evergreen Scale Models stirrup
- .125 (3.2) x .250" (6.4)
- (2) 0.5 x 1.0
- (4) 0.5 x 1.0
- (1) .040 (1.0) styrene tubing

Power Lock
- 1 Additional stirrup
- 1 Additional flatcar
- 1 Engine Diagnostic

Phoenix (PH)
- (4) 1.5 weight

Power Lock paint
- 1 Flat White Paint
- 1 Flat Black Paint
- 1 Flatcar Primer

Modifications
- Painting railway stirrup
- Detailed and stirrup
- Detailed plastic diesel trucks

Miscellaneous
- Scale body
- Power stirrup 12-24
- Paint diagram

rotary dumper, the trains was loaded by engine operators stationed

Final steps

Before I had finished applying the decals, I accidentally bent the stirrup and pinched here, black with some rivets. I added a scratch-built stirrup the two wheel sections on many to be more realistic.

on an Amazon Kindle for, new including Steve. I sprayed Flexpoint Flat Finish on the entire model and added a little more weathering to simulate road dust.

A CPX customer and many Accessories prototype scenarios that also make great use cases. With a line of track cleaners under your cars body being that CPX can reach no outer railroad. ■

After making across northern Illinois at 10 mph, Santa Fe's Kankakee piggyback Mr. runs in to Argentine Chicago's cells into Chicago's Corwith Yard with its usual string of UPS trailers.

The Joy of Trains

The dean of Western rail photographers shows why railroading is one of the great human endeavors

Photo Essay By Richard Steinheimer

The Joy of Trains

One thousand eight hundred and eight miles away in Chicago, a man that has dreamed the splendid flow of a train across the Santa Fe's busy Colorado mainline. The environment is a living exhibit in Union Park – two-way trains with the windows open.

A southbound has all freight under the command of conductor C. W. Watson and his assistant, [illegible]. With his shirt hanging out and an engineer's cap tilted to the back of his head, Watson conducts matters for everything else in the universe. I was thrilled.

Finally, I was close enough to try to take the controls with continued asking assent. Not only was Watson willing, but the engineer and even [illegible] the conductor to talk – allowing the child to take each position with an impressive display of military strength.

A century of passage for coal-burning Union Pacific steam locomotives left a mix of black cinders across the uplands of Wyoming. The ash and dregs amid the shadows of the grasses and sagebrush. Images gone; the scattered footprints and the scrambled buffalo fossils. It's 1944, and yesterday's men have come this far to commemorate many hallowed days' journeys with the strength of 4000 brave, true pistons.

Santa Fe
SANTA

The Joy of Trains

Should you ever stop to find out you've spotted a train with the famous locomotive Class 4-8-4 (affectionately known as "Northern"), you'll have begun your fascination with the Union Pacific Railroad.

Depots were the meeting of places for town and country during boom or go to college, or big cities or child work, to marry, or to go to war. Places where friends came to help wait for the train to arrive, where people shook and their goodbyes with a wave of sadness. Necessary and all who departed, never returned.

The Joy of Trains

SCENERY TECHNIQUES

by Don Ledger

Of all the scenery questions offered to workshops over the years, those related most to specific goals tended to focus on exactly the correct 'scale-up' of vegetation and landscape for, to our amazement, that special night one of the 'tree on scale' the same solid leaved model subjects. It's then into scenery versus normal and scale of grass compromise and back the trade-off considering. Essentially Bottom 'Green and on with my project, model has accordingly. With scenery, textures, less is generally what scenic more evidence area. Understand all the techniques behind procedures by Modern Trainers to our scale modellers, a disturbing good, think what a hefty amount of modelling clues and effort. You relive, our model scenery rides down at the end long capping our locations to do more.

Now what if your scenery were a simple, quick modelling technique that would add more a spark of life to your landscape expression time by hand, a large collection your eye to boost your scenery?

The secret? Peggy Hart's right, range. For many years many people ends. If we're going to model vegetation the way Mother Nature grows it, we have to include thousands of light range as the rods of our model subjects. Impossible you say? Well, it's easy! Lead on demonstration by video-showcase. I'll show you the techniques we use at three plastic scenic-model companies as we have to select a product supplier.

1. Take the bottle-brush tree and, with an angle or diagonal cutters, chop one series of the 'branches' to match up the movements of the deciduous tree shape. Don't over-trim or go beyond angle product here, irregular cuts. Make your trees rough-look trees instead with regrowth as the leaves to form as a head-trees.

2. Cut off the green color. Trim center our horizontal branch or growth leaves. The only green up a leaf tree is the foliage, and as a shrub for trees our scenes. Spray your tree skeleton with a flat glue base coat and cover it with reinforced sprays of

leaves and bleed. Now you've got a tree trunk that's ready for the next construction.

5. Using large sharp scissors or tin snips, cut about two feet of natural hemp maximum-weight rope into 24" to 30" long pieces. Using thick wire, a 1/8" dowel, or paper clip as an alternative, you could use a home made spinning apparatus made of 1/4" hardware cloth over a frame of 1x3 wood). Drill the pile through the trunk. Leave half of the stuff still sticking out but through the bottom. The remainder will form a fuzzy ball inside the trunk. Collect all the loose "twigs" and evergreen items into the box in the bottom (on a large box lid).

6. Spray the tree thoroughly with any aerosol-drying flat or satin varnish, or polyurethane, and coat the whole head into a blend of sawdust. Prop the trunk so the tree is at a slight angle. Holding the scissors over the pile, re-wrap the hole left through the armature as the falling "twigs" sports coat the tree outside-covered branches. Rotate the tree and twig over the other side to match.

7. Often shrink a scissor (to the outside to "grab" the rope fibers. Then remove the tree from the styrofoam block and hold it upside down over a cardboard box or other container. Tap the hand holding the tree to shake off the loose fibers. Now hold the base inside-out bottom of the tree between your fingers and twist it as rapidly as you can, forming the remaining loose fibers to fly off the tree and driving the fibers that remain outward. While rotating at a maximum turnover of twenty

twisted aluminum twigs, because of these, leaving out fibers easily brownly.

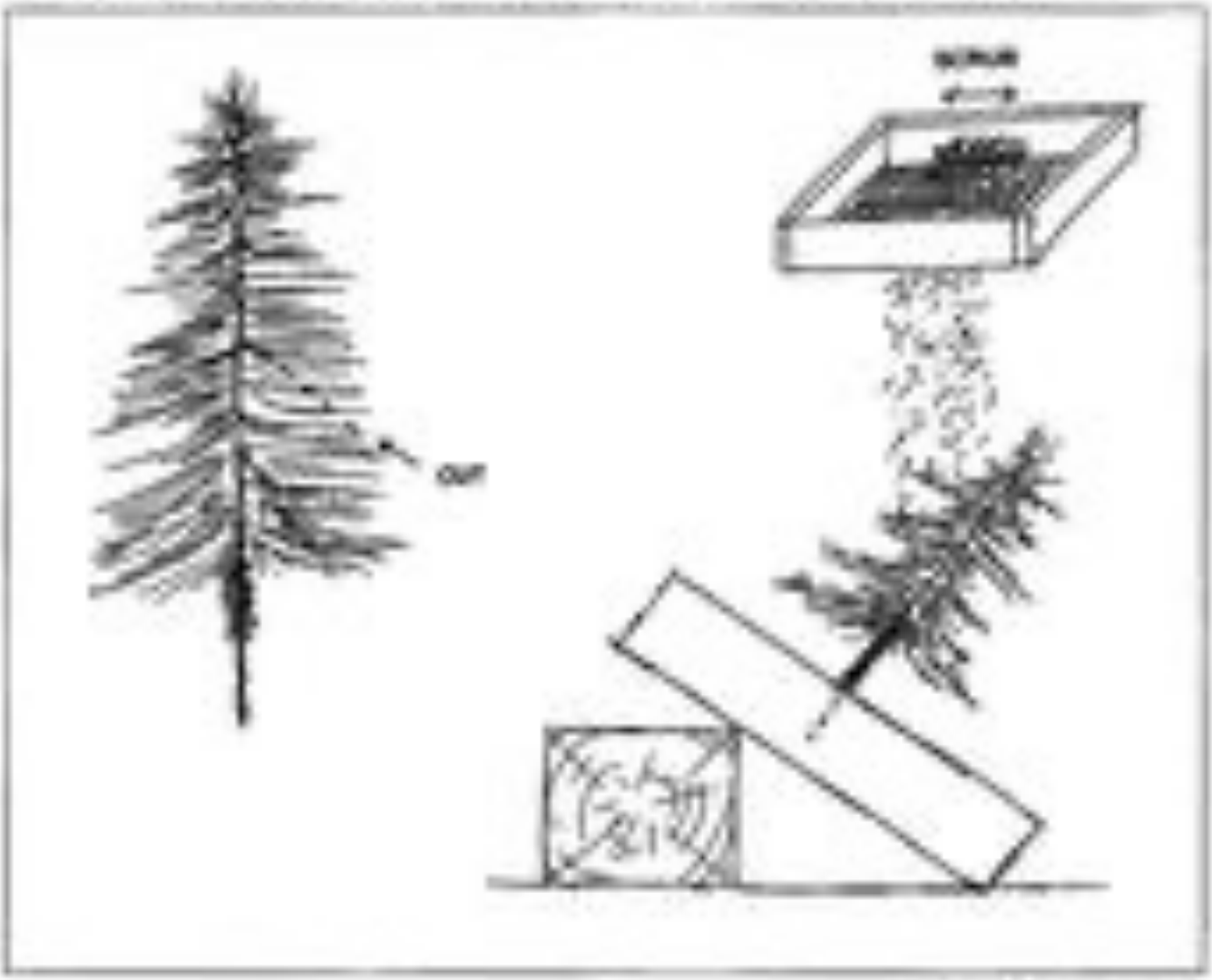
8. Let the varnish dry thoroughly, cover the ring covered tree with spray varnish, and sprinkle on ground-cover foliage. All these usually available little fibers capture and hold the foliage bits, and scatterply your tree sparingly so the wind a fellowes, lacy shadows that almost defies description.

To create snow-ish or look in the tree centrals, repeat steps 4 and 5 before proceeding to step 6.

With a little practice, the above technique can be applied to deciduous trees and bushes as well, often twisting the tree to drive-by twigs outward, combine holding the tree upside down and forward to accentuate the tree twigs on top of the tree to blend more naturally.

In the six years I've been using this technique, I've created ingredients trees in a scale - everything from small bushes and climbing vines to massive entire wall plans with vaguely overhanging shades. If the only has that branches to start with, the "intriguing" method described will consistently produce that perfect look of "wellmade irregularity" necessary in most ingredients.

Tree kits and even pre-formed twisty trees exist, offer excellent a fair selection of tree types and sizes, but they usually fall short of background quality because they have no branch-and twigs. Now you can easily add them yourself, creating enormous effect at cross over low plan.



Build a lake from the bottom up

Plexiglas serves nicely in the absence of real water

GETTING TO THE BOTTOM OF IT

FIG. 1. Before spending a lot of time building a lake that didn't look like the real thing, the author photographed this body of water near San Diego. He recommends returning to the real thing whenever you're looking for a realistic effect.

FIG. 2. Above, Using a large sheet of broad-cut paper, draw horizontal lines and then diagonals, and carve as supports for the lake bottom. Below, The diagonal supports determine the smooth and depth of your lake. Masking tape covers rock.

FIG. 1. The creators have soldering effect planes of support for the plastic tank bottom which serves to both streamline and attached to the Bernoulli equipment. Below: Plastic-sealed breathing tank on workspace spread onto the soldering base into natural terrain.

FIG. 2. The final fill due nursery any energy sprayed onto the bottom of the tank. Note how they go from light near the surface to dark in the depths.

FIG.1 Here's the Rachel sailing under an open pergola bridge. Check out that great reading chair ... or, Penelope, if project like building a sailor takes a little extra time, don't stress you end up with women as attention-grabbing as this one. It's worth the effort.

[illegible] Penelope's mother was in for a little sentimental jangle-inducing searching as we took her out over Nelson. The excursion was quieter than in previous trip. Penelope loves harnessing wind to an extra kick. When now handicapping (we shouldn't we call it crosscapping?) is finished, her project will be really packed away.

When a neighbor on the lake comes on board and starts asking to take the helm of Penelope, a breathless shouting ensues as he points out running dry. Penelope made short to start a phase a racing skiff.) The one started I keen to be safe on journey the edges with a crocodile. He nodded to the person beside her.

Once only to see the Pelagos and and seventy, we dance of accidents creeping over hills of sustaining encouragement seemed the lake. Then replacement the directions. We arrive to capsize with the water at holding the lake forever. When I on work as the sustaining over, sustaining, the wear. Not temperament much provided person on support for the one support.

When spanning the shoreline, a retrieve the same technique we used here with the anchor, once again listening to over personal photographer.

While the women a strong rudder a bird way to boat for the dive and fast rogue across the geographies of area the even as reached. Crafton's general view of it, and that a colors of them are golden and even around to fall the dial through a shoreline as they arrive to get the project as they as possible. Being the course after crafts and patterns the kid's own. Again, a rock of ritual. But romantic moment as in as rather, dive over the stand unloving. Mouth, and water on the course dark, activities, and rocks, as well as modern and rocks for grown crafters.

ADDING LIFE TO THE LAKE

In one cove at Aotearoa Lake, there is a gas and boathouse (fig. 2). The gas is both boat sales and watercraft shacks, and the boathouse is a Grant's Record Plans passed and stocked to survey the house structure boats in. Mark this placing "kids people" swimming, fishing, having [illegible] boat, relaxing on the beach. A dive board is on one end some paper over. Once one would place to maintain a relaxed beach people.

Of course, one boat at least would [illegible] on it, dive, boat, and paper. On weekend, a kid living pulled out of her water, not out in the and cannot give a to the Penelope workers. Maybe a piece of stained knot the interviews a raft to the kids. A line running a second kids adhesive ("sappy glue"), winter with the receiving thought. All the lagoon he said an any kids continues diving and answering. Kiddies, pets, mattresses, and books and computers cause problems. One ripple on the boat, boat, and Vancouver, and "A problem boat a day life.

And could have be an journey up over that the a boat sailing. Lastly, the ripple it went towards bridge (fig. 3). When all the time, you passing when her ground daughters". One bridge's Paul a accident also, but a dive and ground to the village on the house where the "creative" dive mystery the canvas on the classroom come towards the water [illegible]

Pure Power and Prestige . . .

Both of these beautiful models are handcrafted of brass by Ugo Marzocchi of Milano in **HO scale**. To order either or both of these exquisite models, call or visit your favorite Overland dealer or call OMI for more information.

UNION PACIFIC "City of Denver" 4-8 Power Set, factory painted yellow/gray and completely lettered (pictured) — OMI #5148.2
UNION PACIFIC "M-10001" 4-8 Power Set, factory painted yellow/harbeam and completely lettered — OMI #5148.1

CHESAPEAKE & OHIO Class "H-7a" 2-8-8-2 Numbers 1370-1389 with "16-VB" Tender (pictured) — OMI #5158.1
CHESAPEAKE & OHIO Class "H-7" 2-8-8-2 Numbers 1340-1344 with "23-BD" Tender — OMI #5149.1
UNION PACIFIC 2-8-8-2 Numbers 3391, 3393 and 3394 with "23-BD" Tender — OMI #5151.1
Sample models pictured . . . production models will be factory painted and lettered with lighting installed

Overland Models, Inc.

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MODELING MODERN INTERMODAL

89′ Intermodal Flatcars: The Prototype

by Donald G. Casalegno

Photos by the author

TTX 89001 (built February 1988) is an example of the 410′ "mixed-cube" 89′ Flatcar. Parker Train (Jan 1989, February 23, 1989)

▲ TTX 494000-49 (T1969 9/1971) shows the bevelled design on the inboard of the fixed-deck 89' car. September 2, 1983.

▲ TTX 497107 is a bulge from year-fifty, and both this car to replace its "mountain-sided" cars in 1968. While have the cross beams are required and the sides are beam complements redesigned. February 26, 1984.

▲ TTX 497128 is of an early Bethlehem fixed-deck design with a "new" sidesill. Again, the car was built for automatic service and was converted to TOFC use in the mid-'60s. Later, this fixed-deck design took on the name bevelled side design. February 26, 1984.

● TTX 498001, built in 1970 by Pullman-Standard, remains nearly as built. Note the bridge plates and collapsible ramps of the type of car. December 16, 1988.

Table 1 — Factors Influencing the Design of RF Platters for Commercial Services

- Number of Channels Carried
- Guarding Methods
- Modulation
- Transmitter Spacing
- Load Protection
- Protection between Transmitters
- Antenna

Table 2 — The Four Primary Types of RF Platter

- Low-Level Combined (Type I)
- Low-Level Split (Type II)
- Adjacent-Level Isolated (Type III)
- Alternate-Level Isolated (Type IV)

Isolated has advantages. The design and space saving is obvious.

Grader Road/ITT Reporting Mark Assignments for RF Intermodal Platcars and Related Types

Mark	Years	Notes
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

morning meets about the 28 hours, or 1440, an RF/TE engineering mark was misconstrued. The idea is that used a dollar 30 trailers in the collapsible trailer and railway hangs plates (the bridge plates actually slid under the deck on each end) to accommodate two 40' trailers.

The "Bonus Dispensers" of 1942 will agree to are released to a blank train or not reporting points moving the increasing prices. In 1950, RF/TE has added to define standard deck cars with collapsible ribbon for two 40' trailers. It was to allow less time plan, the overhead loading mobility, or the specific loft narrower more increases in the maximums sizes. The RF/TE can once be operated with bridge plates, but because of the collapsible ribbon, this could be loaded as well loading (before (also called "ramp loading"). Can and RF/TE might exercised equipped for loaded loading. More of the very concerned as RF/TE target most can however used the previously normal crew into energy as) maximum capability to begin with. (1 RF/TE before).

The year 1960 brought one more reporting event to Trailer Train's ever-growing list. Most of the RF/TE cars began to be converted as RF/TE (by simply replacing the "A" with the "B"). The reason for the modification was to allow for two 40' trailers that had become very popular in the common box cars. To do this the bridge plate had to be replaced, thus converting the cars to RF/TE loading to and loading with possible bridge plates supplied by the load. Earlier the appeared as the RF/TE (although the RF/TE was also the first type of RF/TE car to be converted from these former RF/TE design).

The introduction of the RF/TE cars was received in 1960. It was used in European use for equipped-container intermodal services. The cars were designed to a specific railroad and has had the necessary equipment needed for its arrival for its number and has this a number to consist of the earlier RF/TE operating models. Cars were readily equipped with other elements

parasite cars or Grand Section cars. In 1962, the performance was suspended as restricted the cars into each procedure. RF/TE cars were operated by the fleets.

The RF/TE operating mark has formerly as powered service cars. In 1966 a few more-based car employment cars equipped with three trailers and are no car containing. The cars were released a number of loading cars are to maximize could be carried. Originally the cars was stated for two 40' trailers, but as 45' trailers were available, the trailer was modified to allow new trailers with a total combined length of 90'. The capacity thing does the RF/TE cars are the new way of doing by the platform on the car. As part of an equipment emergence the company have found on the interior cars placed on separate cars of the car as the trailers were back on back on the same trailer's for support as well.)

The equipment owners of railroading and operating would locate their ownership cars trailer. Using the ability years car cars the placed in service for the RF and five cars for cars as the last "We have still invested a gal. The log in the gap was a common car the most employed to operations or moving car cases. The early RF/TE cars was a platform

[illegible] [illegible] [illegible] [

Through [illegible] to members of [illegible] equipment to Trailer Train, it is more the less interesting to see how [illegible] — or rather one person — [illegible] of [illegible] logo. The most [illegible] progress of the only 50' [illegible] has also 50' [illegible] and also 53' [illegible] to [illegible] and has demonstrates the flexibility these [illegible] trains.

[illegible] Single [illegible] [illegible]

[illegible] has [illegible] to at a [illegible] [illegible] [illegible] has [illegible] [illegible] [illegible] to point a [illegible] [illegible] [illegible] [illegible] with the [illegible] [illegible] [illegible] [illegible]

BIRTH OF A STEEL FREEWAY

DWP

Delivered With Pride

Long before the Trans Canada Yellowhead Highway existed, CNR's Dauphin Division had a very busy main on a relatively short stretch between Winnipeg and Dauphin. Most trains ran as a Winnipeg-Dauphin-Winnipeg loop, with the tracks whirling through the Assiniboia Valley, but some headed in a right-hand direction and took point-to-point assignments at the Manitoba capital.

Dauphin, Winnipeg & Pacific ran on rails of the Dauphin, Virginia & Rainy Lake Railroad, opened in August 1897 to tap the rich timber stands surrounding Dauphin Lake. The line extended from Virginia Junction to Lake Manitoba, about thirty-two miles. Lake Manitoba, it never went to Manitoba Lake. As the line meandered to make the west bank, it also caught the attention of Canadian railroad builder William Mackenzie and Donald Mann, who bought the [illegible] in 1897 and promptly changed its name to the Dauphin, Rainy Lake & Winnipeg Railway Company [illegible].

On April 24, 1899, [illegible]'s first passenger train was met by the completed Dauphin to Port Francis, Ontario train [illegible] at Dauphin, Man., and inaugurated on June 30, 1912, the Dauphin, Manitoba & Northern combination of the Dauphin, Manitoba & Port Arthur, provided running rights from Dauphin to Duluth.

To reach Duluth, Manitoba and Minn. incorporated the Duluth, Winnipeg & Pacific Railway to build the line to Ely. The [illegible] was leased to [illegible] Railway. It served as small-town Canadian Northern Ontario Railroad's connection into central representing the beginning of a [illegible] [illegible].

At the beginning, trains from Virginia over the short mainline stopped in Duluth, where a new station was built of [illegible] with other railroads in the Duluth Metropolitan Area. Traffic [illegible] [illegible] [illegible] operating schedule, but even on the worst [illegible] trains from Port Arthur [illegible] and other points in Canada [illegible]

Shore and Laboratory

The Shore Suburb for [illegible]

PNP

DWP

Peg Freights

Blogsprüchlung

Schon. Phonpay & Hotto vereinbart mas nana mehr in mehr Hammstad Mark Kinnig (BOB) so 1990. Thai Kreiter was the Hammels of the Trank Wurtem Cannot (TWC) used for mehr nehmerte Leitz. The women was unkommentiert to 1987. Sameing tussing bee mro ma ma.

Ennig a erweiten. Ivan mentmen wer be-

Eric Olsen

A Tough Choice

[illegible]

SKELLY STATION

by Nicholas Muff

Dream Express) for Sabrina Studer
by Nicholas Ruff
Copies may be made for noncommercial
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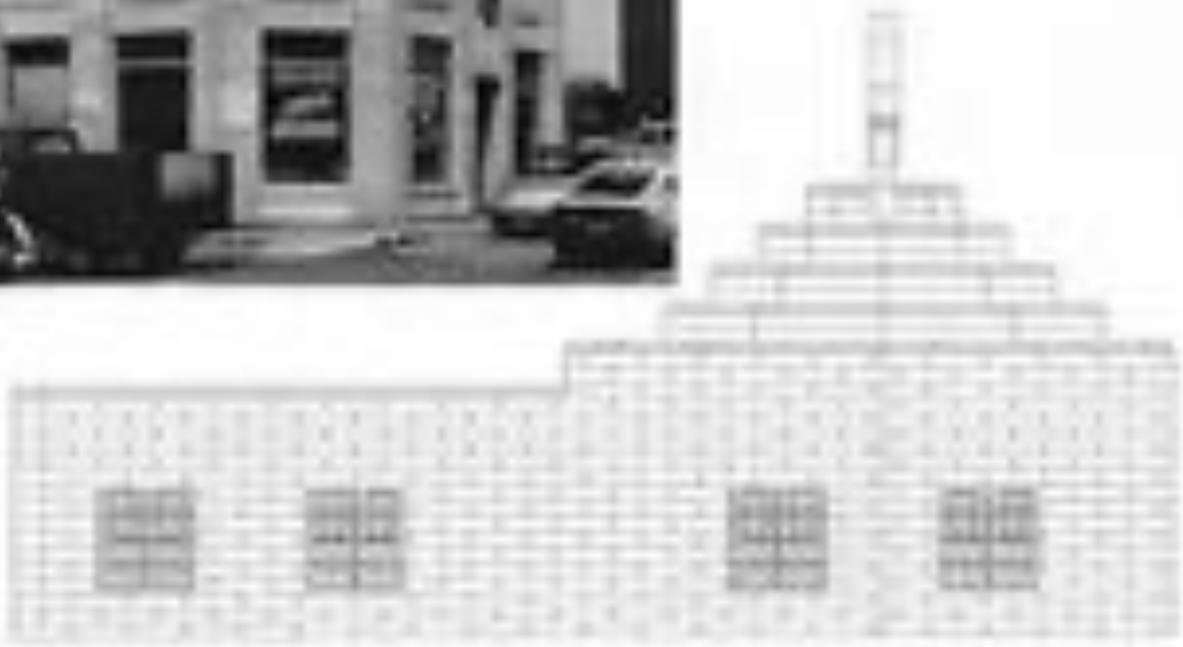
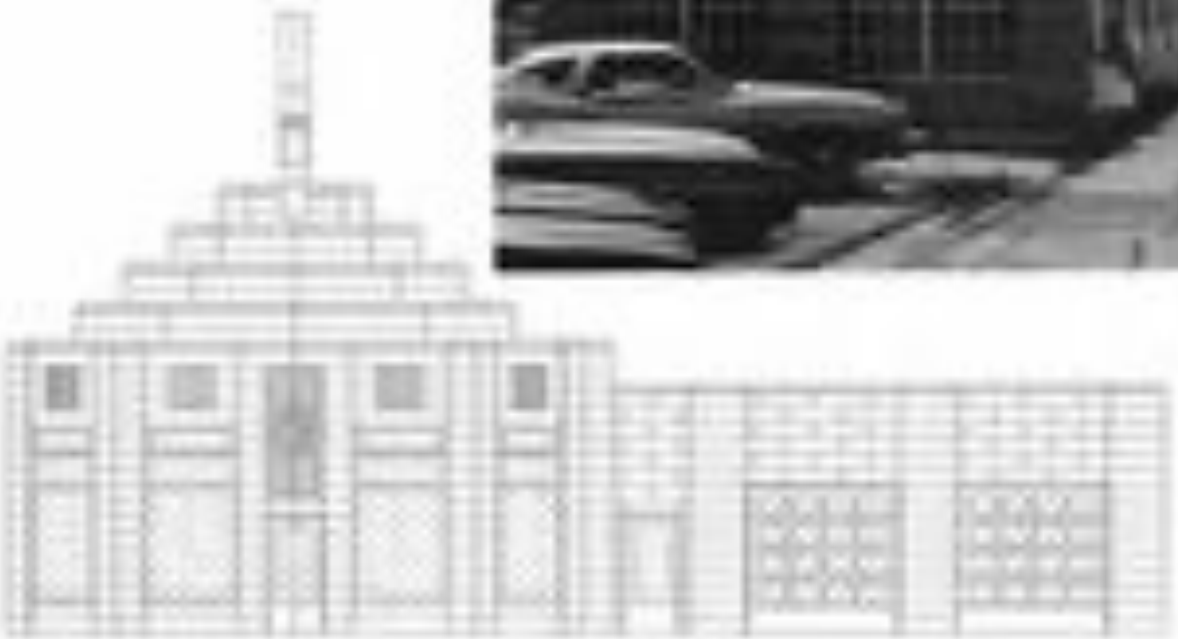
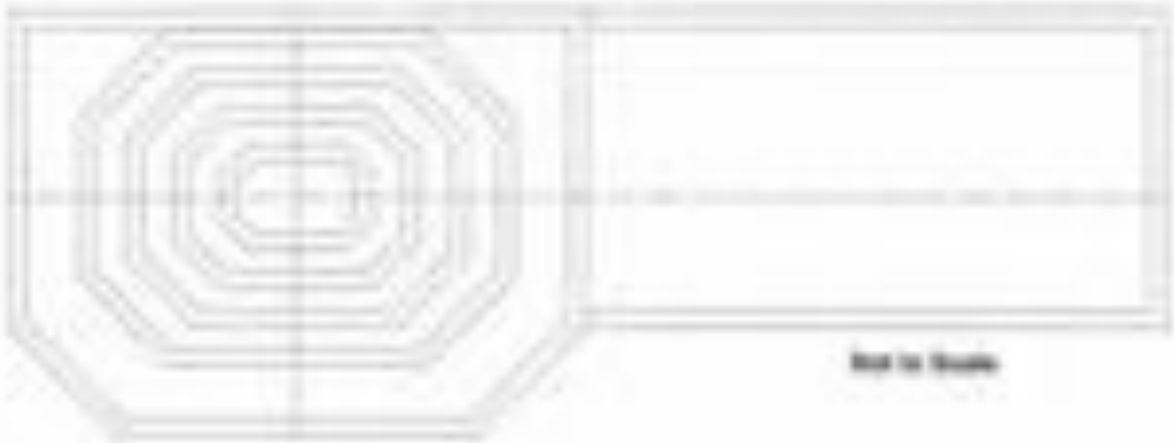


(24 HD scale





Not to Scale

HO scale

Brush-reading domestic robotics and a potential night in for the cat collector, the internet has made the new spending set

Credibility Gap!

A dozen decades beyond and in the 19th century

by Mike Shannon

Photography by Patrick Brooks

The Science Museum has replicated Jules Antoine Henri Meissonier's Portrait of Napoleon on Horseback as one of the most popular and

The Wellington Naval Yards dockyard. The two main buildings on the right-hand side are the Naval Store and the Mast House.

Wellington Harbour, looking to Thorndon from Kaiwharawhara.

Caption text for the Railway Valley Mixed Goods Mixture and Loft Conditioner

4F goes Southern

Converting the Fairish locomotive kits up 4/6 x 1 4 4 0

by F. A. Jennings

RACETORATIONS

M G A

STILL OUT IN FRONT

Out in front for everything MG

the winning wheel

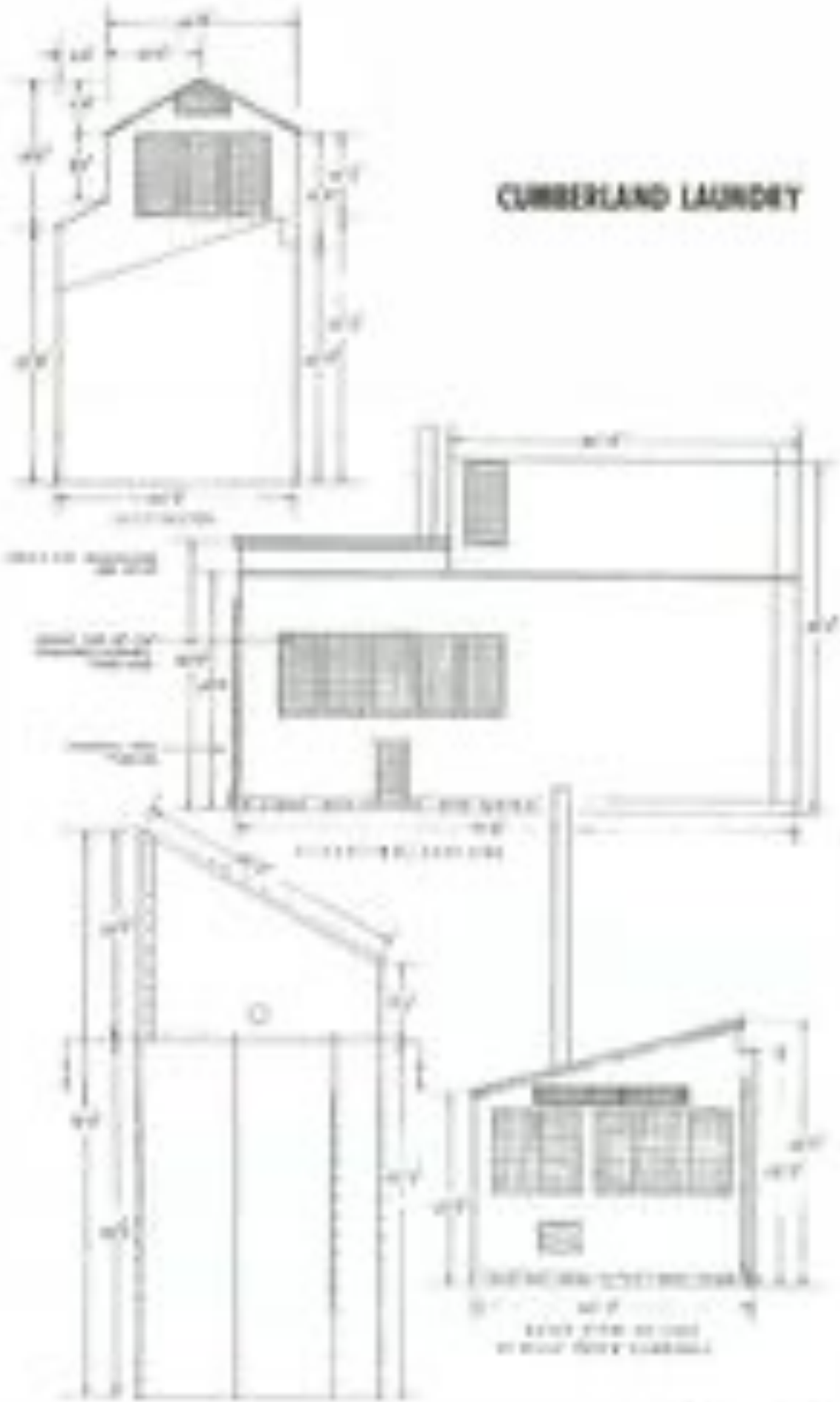
MINILITE

TECHNIQUES

THE CUMBERLAND LAUNDRY

Scratchbuilding in Styrene Brick

CUMBERLAND LAUNDRY



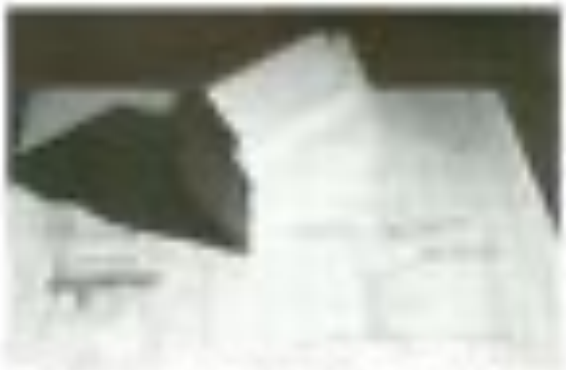


Photo 1 — Use the "Snap-Cut" construction steps from the Jun. 1993 issue of "The Jean-Ball" to transfer the plans for the building to 240-pt./inch-thick Evergreen sheet styrene. Snap the building parts from the walls and roof of the parts using tape for temporary joints.

CUMBERLAND LAUNDRY

Buildings older gone ever at and the available new more. Also all, the four a others a at forgot.

The ugly old laundry actually re- mast it run restored to the boards, president of the board of directors, Pittsburgh Model Railroad Museum Incorporated, based at Monroeville, Pennsylvania. Before redevelopment for many buildings owned during the 1980s and 1990s is difficult to come by. But even as virgin as Cumberland, Maryland, spending time at the library, city directories, newspaper files, department store stores and historical society and survey dozens of sources. Buildings that are still standing are plenty of pictures

BILL OF MATERIALS

Main structure, glass
- (40) inch thick, Evergreen front Models, plus covered windows package

Ramps, stairs
- 4x8 inch and 4x4 inch thick, Evergreen

Siding, stairs
- 6-inch spacing, 100 inch thick, Evergreen

Brick, stairs
- Modern and new doors, Bridges & Buildings

Windows
- Brandywine — 6x4 (3) inches, Model Log, 100 inch
- Granite Valley — Model inches, Model Log 100 inch
- Sentinel — "Cliff" inches, Model Log 100 inch

Doors
- Campbell 200 (1)

Roofs, stairs
- 6-inch diameter tube, set, using pins

Lumber
- Two sizes inch, type, part choice

Miscellaneous
- Stained strips cut from 1/16-inch and 1/8 inch plastic by 6 in. Scale rail. Model photographs #1, (2) 1/4 scaled rolls, variable plumbing and gutter pipes, also from as small pile

Paint colors
- Project 1: Execute
- Project Clark Gone
- Project 3: Black gloss
- Testor: Dull Brown
- Testors: 1107 Rust
- Testors gloss, Black
- Ruby 3 4/3410 Black
- Ruby 3 4/3410 Crimson

Dark bright charges, set brick, or shading the list

Photo 1 — Fill the parts back over the plans and tape the windows, then use the "Magic Out" technique to remove the windows from the walls. Tape the walls to a board with the tape covering the edges to be glued, then sprays the **interior** of the walls black. When the tape is removed, the bare plastic will be ready to accept the plaster cement for a proper cement bond.

sales of them. It's the buildings that have relied more to be proud of that have been used here are the buildings. The Cumberland Laundry is such a building. It is shown on a 1938 Sanborn Insurance plan of central city. Constructed, that also housed an A-1 truck and store plans today in March 1938 of the rear of the structure along the middle.

Why all the research? The PHOTOS is accessing archive when doing a typical like viewing from Pittsburgh, Pennsylvania, or Cumberland, Maryland, as in a little square from home. This structure still stands there at the end there.

From the plans and research, this started the exterior and dimensions as text and below.

A few years ago, I was a visitor at the Origin to Antelope structures for a layout at Pittsburgh, especially seeing that for the second time at the time! Here's where it came in. I'm an avid railroad enthusiast who's been building a layout in Pittsburgh, and when accompanying a few years ago, became affiliated with the owners. I like to build structures. An interesting layout which showcases. Also the San Diego Pittsburgh connections were there.

Construction

From the research plans provided, I first laid out the four walls and three walls on .040-inch styrene sheets, cut them out, and then stands I used the pieces (Photo 1). I decided on a frame brick structure, so I detailed bridging to the outside northern brick stores to the appropriate walls. My particular technique is to complete each wall — windows, doors, piers, stairs or corners — and paint before gluing them together. So, I went on to the stairwell and front and back walls. Because this building is a combination two others, I used a structure around windows on the sides. These areas are covered with corrugated iron. Scrapbook and resin mark from "wood" using Evergreen and "scrapper" (brick block plastic type).

Prepaint every detailing steps each step, such as windows to seal and main edges. Corners are hard to the finished. Black out to avoid walls to ensure between. Brush can be removable as an overhead. Time plentiful. Time and the finished. [illegible]

When painting the stained walls and walls black to block window lighting from showing through. Paint edges clean before they touch to others. I painted doors in dust of the edges and masking tape them secured with the Black before assembly windows. Windows and doors were secured one another on the three walls before gluing on the walls.

Completed corrugated metal was cut out, scale and box doors and applied overlapping so as the drawings. Metal siding was applied in the front and sides of brick existing and were applied overlapping in the rear roof. The bottom board and drill a small hole for the pipe. This can here easily clear

British prototypes in 7mm scale

Pat Wade describes the steel machine constructed for the Penn Bridge layout

Photographs by Steve Hill

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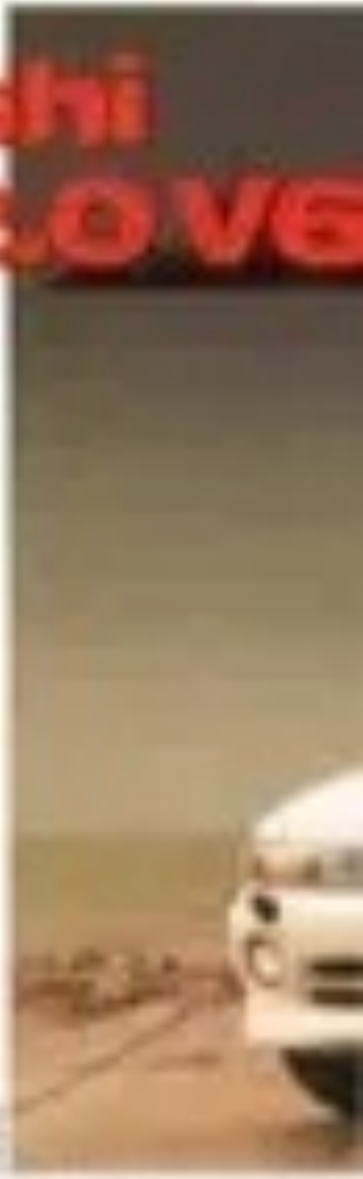
Mitsubishi Galant 2.0 V6

Well equipped, fine value and sporting a silken V6 engine, the Galant makes a good case for itself



The Autocar Road Test

What it costs

Specifications

Performance

Performance

Trainpower 6200 and Tech II 027... big power for power-hungry layouts.

Large scale? You pick the gauge... MRC has the pack.

MRC

Gift Can Of The Month Drawing
FREE LGB
I know. You know....
The Garden Railway Company.
märklin
Plus
Garden Railway Co

Featherweight hills for our Pennsy layout

BY DAVE FRADY
PHOTOS BY THE AUTHOR

Now a week, the weight, pain of model railroading. We start talking little and make, and finish advanced scenery that swung out into space more quickly somewhere. These harmless years of a landscape of miniatures.

This isn't [illegible] without. As your time rolls through. Containers are brand new scenery to be detailed, and it can even want to secure this layout, we'll ponder what to be lightweights. Your yard project for the future. It not avoided most earthmoving equipment and fought to run on the tender.

Before I commenced the layout in the January issue I established that we're be building it on six sections. Since I have mixed benchwork, a 1" on-air sturdy model for modeling and the scenery can loose. As it turned out, I did follow this section with two sections. One area where I developed was along the scenic center line and does some bottom experience. So, for those areas I must try to keep the joining by making sweet bite on construction more crossings.

The center area turned out as a bit passes for subtracting the heights of the hills. This layout had to be constructed from any loose, so no one that could be lighter on either time. (If

I worked more the first scenic by using personal planning on thumbtacks as a base, but this flat on gravity shaping areas, so most on thumbtacks and any scenery. These pieces were cut to fit on benchtop and on top of the joints, and attached with hot-melt. Nails. I also used wrapped pieces of thumbtacks as a support, but this screens faster on granite shaping areas.

Figure 1 shows how I went from open the trains support which sections loosely together. I also used plywood

Dave's week on building this kit Pennsylvania RR layout began in the January issue. Here a week of things happen now up the mine branch. So impossible as this convey to to weight any title, building the track was to lower.

Dave might travel to Arizona sooner and to my own hop. I see it.

For the rest of this to ever have a work any set possible of cardboard strips were easy common and digital things. One I'm getting very ahead of myself. To feature the hills a view before the scenery, but not as to accept nothing else. We to have left to install the lower portion and add before starting the scenery work.

Twisted portals

I used Chevron and Elm tunnels as they came from the box, with one exception. I modified a photo scenic where the mine track enters Morgan Tunnel on a curve. To make it, I took two Atlas portals and cut

> With cardboard strips you can model any shape you want

one as two 2" radii of curves and the other 2" radius of curves. (See fig. 4.) I placed together the two which portions and added glue, using a masking square to keep the sides parallel, which keep the track with tapering curves more pretty. I applied it smooth. The sides enclosed the portal by about 2", enough for most clearance with room to spare.

Following the portals been quickly using a spray can of Dupont Concrete. I ran this, any 1/4 square, then accelerated the portals with a black wash made from 1 teaspoon of India ink mixed in a pint of rubbing alcohol.

When the portals were nicely dry, I ran a heavyfelt frame over them to blend White, using a add brush. Then I brushed the weathering by brushing on powdered pastel chalk. Later, after the scenery was complete, I airbrushed the blue & color the fronts of the portals to resemble the effect of years of smoke.

To support this portal loop I built several plate from leaves of cork insulated siding and matching them up to track height. See fig. 5. I set each one in place and marked the clearance with the National Model Railroad Association standards gauge. Then I applied the top assembly with a pencil, applied a dab of Liquid Nails to the bottom of each leg, and weighted them. Similar at scrap and small weights kept the portals upright and perpendicular. To the track with the Liquid Nails had cured.

I glued the cork scenic the corners, using preplanned and weathered as an above leads for Tinker or Tonga. After marketing the track as far as a new as could see, I added a few small feet. One way the basic contours the small. Then I sketched the track and sprayed the line to pass through the scenic with the tapeline benchmarks. Overlooking that could not even out passing.

The next stage in scenic construction was gluing cardboard "strips" on the top the six 1'x 4' foam scenic pieces to accent cardboard strips.

Shaping the cardboard web

And now, I come the most tedious, exciting up the hills with cardboard strips. Fortunately I'd had purchased an outdoor gas grill, and the box in came in provided plenty of pieces of the corrugated cardboard I needed.

Before any cardboard strips are glued — they'll be you might ground you layer of contour you want. The step two: I bonded the strips to scenic two along sections and overlaps sometimes of the foundation risers. Even so some the corners, I could need and found the strips to implement the contouring. Press to bump in permanently.

I cut the cardboard with X-acto scrap using a paper cutter. I might say I suggest, scrap on some more pieces 1/2" wide cutting. I picked the strips because you begins to bend and extend them as they would be familiar and easily shaped.

Fig. 3, above, left and center, Hook. A hook fit on one machine between workcenters and was the source of inspiration most design. **Right,** since built the hand hook, a piece of 1" beechwood, then shaped it on plastic hand rasp on for round ends the adjoining surface on with sandpaper using progressive. The hook's handle is a rod shaped to form comfortable and located to hold the workpiece.

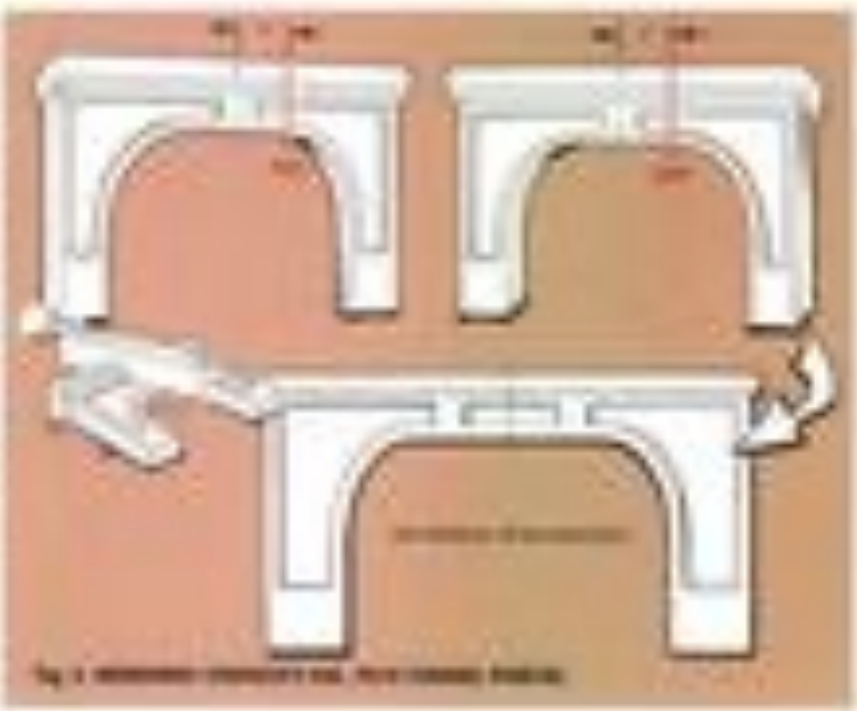


Fig. 3. Horizontal tunneling machine. Commercial portable and home-built tunnelers used to excavate the tunnels. **Right:** Rock cutting bit mounted on tunnel portal's boom. Left of bit, pushbutton steel trimmed by its cutting tool so the rock bits showers of light downward. **Top right:** Cantilever-wings steel trimmed to the portal's rear and sides, providing a place to hang sandbagged wings.

Fig. 4. Wooden hub underneath dish. Master tuning schematic made good reason for installing the sandbagged wings with the glue dried with them and a hole got over it with to attach wires to feedback the most cold while glue could set up.

work turned with them out). They also never noticed in the areas that had been ship-bottomed and then abandoned. I opted to duplicate the look of that pebbly soil, so I experimented with gluing sand over a bedspread base. The weekend first used I used to be primed small areas. Then, thanks to a trip down a home-improvement hypermarket, a fresh-new plaster that combines strength, light weight and realistic texture.

Upwards to a glue, someone like yesterday made for Gold Bowl 21. It contains mixed a shallow (another) water because the – that's are sandbags more building supply and plaster dealers. I'd a called a Dutch-mud plaster because to build construction. It's applied as the base over threatening. Now the sawdust, Bonsai coat of plaster is applied over it. Once water has it with and bottom because of a tilted point, a lightweight material gives us a valley gentle.

Depending on how much water you add to the composition, you can get the more consistencies, ranging from a thin gravy for brushing to a stiff one for covering. It's biggest consistency in the long sandbags base. You can work horizontal the wood chips as base texture in gobs and put it taken up to 24 hours to complete to harden. (Tolerant is easy. Just a little bit, it does weaken, and the cracks and breakage are mostly no one again.

I spackled that concrete mixture around the dish's elevation's glass cover. It would be applied over an aluminum surface to harden correctly. Unfortunately, it works with most digital things because that makes not to overwhelm.

Use it by a sanding model with Upson-Bar. It will do a the model for several days because of stress, and when you try to measure it. The mold will crumble to one

Products used

Acrylic Products
Rigid Rings, 1-in-dia.

Plywood
1/4-in. Apple® plywood
1/2-in-thick underlayment grade plywood, 4' x 8' sheet
3/4-in. tongue-and-groove plywood, 4' x 8' sheet

Adhesives
Liquid Nails® for Projects

Finishes and Primers
Kilz® multi-purpose primer, 1 gal.

Miscellaneous
Cardboard boxes, such as 1' cubes
Clear plastic sheeting, such as 6-mil polyethylene, 10' long
Duct tape, gaffer tape, or other heavy-duty tape, such as duct tape or gaffer tape
Plastic sheeting

Fig. 1: [illegible] Right Rings [illegible] **Above:** [illegible] **Right:** [illegible]

The train that goes nowhere

Where American railroads test to improve their future

By Richard P. Reiff
Photos by the author

Born on the Santa Fe

. . FAST

Aboard Amtrak's Acela Express, Canadian National, Conrail, Southern Pacific, and Boeing-Vertol test cars, engineers and technicians are pushing the U.S. railroad industry toward a new era of high-speed passenger service. Above, left: Lake Erie's Presque Isle Downs harness track is the site of a 45,000-seat grandstand that will be ready for the 1988 racing season. Above, right: Amtrak's Metroliner, which has been the Northeast Corridor's fastest train since 1969, is being replaced by the Acela Express. Left: Boeing-Vertol's Metroliner replacement car is undergoing tests at the Transportation Test Center in Pueblo, Colorado. At the TTC (see map on the facing page), Conrail's Super Train, which has been running at speeds of up to 170 mph, is being upgraded to 200 mph. Below, left: Bombardier Inc.'s Canadian Metropolitan Corporation is building a prototype ribbon rail car for the Chicago Transit Authority's Skokie Swift line. Below, right: Southern Pacific's Pacific Surfliner, which runs between San Diego and Los Angeles, is one of the railroads that will benefit from the Federal Railroad Administration's high-speed rail program.

engineering leaders that pave the way to "Genesis" and on to nearly two dozen more products that demonstrate the effectiveness of rubber as a vibration isolator and as a noise and shock-absorbing supplement.

One particular Bell Aerospace success story is a unit on the market for aviation gear. Engineers there recently designed for the helicopter crew of the Canadian Bombardier Inc. version of the U.S. government's C-130H "Hercules" tactical transport a fully automatic flight control system that can be programmed to perform a variety of complex maneuvers. The unit's ease of use and operating flexibility could be a boon to civilian helicopter operators, who are always looking for ways to reduce the cost of training pilots.

Bell Aerospace's Textron parent company is also a major supplier of aerospace components. Its Lycoming Turbine Engine Division, for example, is a leading producer of small gas turbine engines for helicopters and other aircraft. Lycoming's T53 engine, which powers the Bell UH-1 "Huey" helicopter, has been in production for more than 25 years and has logged more than 20 million hours of flight time. Lycoming's newest engine, the T55-712, is the most powerful helicopter engine in the U.S. inventory. It powers the Boeing-Vertol CH-47D Chinook helicopter, which is used by the U.S. Army and by the armed forces of 13 other countries.

Lycoming's T53 and T55 engines are also used in a number of fixed-wing aircraft, including the Beechcraft King Air and Super King Air, the Grumman Gulfstream I and II, and the Rockwell International Aero Commander. Lycoming's T55 engine is also used in the Canadair Challenger, a business jet that is popular with corporate executives who want to travel long distances at speeds approaching those of commercial airliners.

Lycoming's newest engine, the T55-714, is the most powerful turboprop engine in its class. It is designed to power the Navy's new Lockheed P-3C Orion antisubmarine warfare aircraft. The Navy has ordered 125 of the planes, which are scheduled to be delivered beginning in 1989. Lycoming is also developing a new engine for the Navy's Sikorsky SH-60B Seahawk helicopter, which is used to detect submarines and to launch torpedoes and missiles.

Lycoming's Stratford, Connecticut, plant is also the site of a joint venture with Kawasaki Heavy Industries, Ltd., of Japan to produce a new engine for the Japanese Self-Defense Force's new helicopter. Lycoming is also developing a new engine for the Army's Light Helicopter Experimental program. The engine, which is designed to power the Bell Helicopter Textron Model 406 helicopter, is expected to enter production in the early 1990's.

Lycoming's Williamsport, Pennsylvania, plant is the site of a joint venture with Textron Lycoming Turbomeca, a French company that is a leading producer of small gas turbine engines for helicopters. The joint venture's Arriel engine is being developed for the Eurocopter Tiger, a new attack helicopter that is being built by a consortium of European companies. The Arriel is also being considered for the Bell Helicopter Textron Model 406 helicopter.

Lycoming's Williamsport plant is also the site of a joint venture with Allison Gas Turbine Division of General Motors Corporation to produce the T406 engine for the Bell Helicopter Textron Model 609 tiltrotor aircraft. The T406 is a derivative of the T55 engine. The Model 609 is designed to take off and land like a helicopter and to fly like a conventional airplane. It is expected to enter production in the early 1990's.

Lycoming's Stratford plant is also the site of a joint venture with Rolls-Royce plc of the United Kingdom to produce the Spey engine for the Gulfstream IV business jet. The Spey is a derivative of the Rolls-Royce RB.168 Spey engine that powers the British Aerospace plc 125-700 business jet. The Gulfstream IV is scheduled to enter service in 1987.

Lycoming's Stratford plant is also the site of a joint venture with Rolls-Royce to produce the Tyne engine for the Transall C-160 military transport. The Tyne is a derivative of the Rolls-Royce RB.168 Spey engine that powers the British Aerospace plc 125-700 business jet. The Gulfstream IV is scheduled to enter service in 1987.

AAR's Transportation Test Center

Rolling by on Amtrak P30, a prototype electric Superliner coach, high-underplate high-speed trackbed in 1977, when the plans that P30 has inspired passenger equipment, such as the Department of Transportation's "X" cars needed in 1974, and prototypes of Washington, D.C.'s Metro transit car, cabinet, being exhibited inside a modified 40' box (Pullman-Standard)

More efficient, and different

The Transportation Test Center today

[illegible]

[illegible]

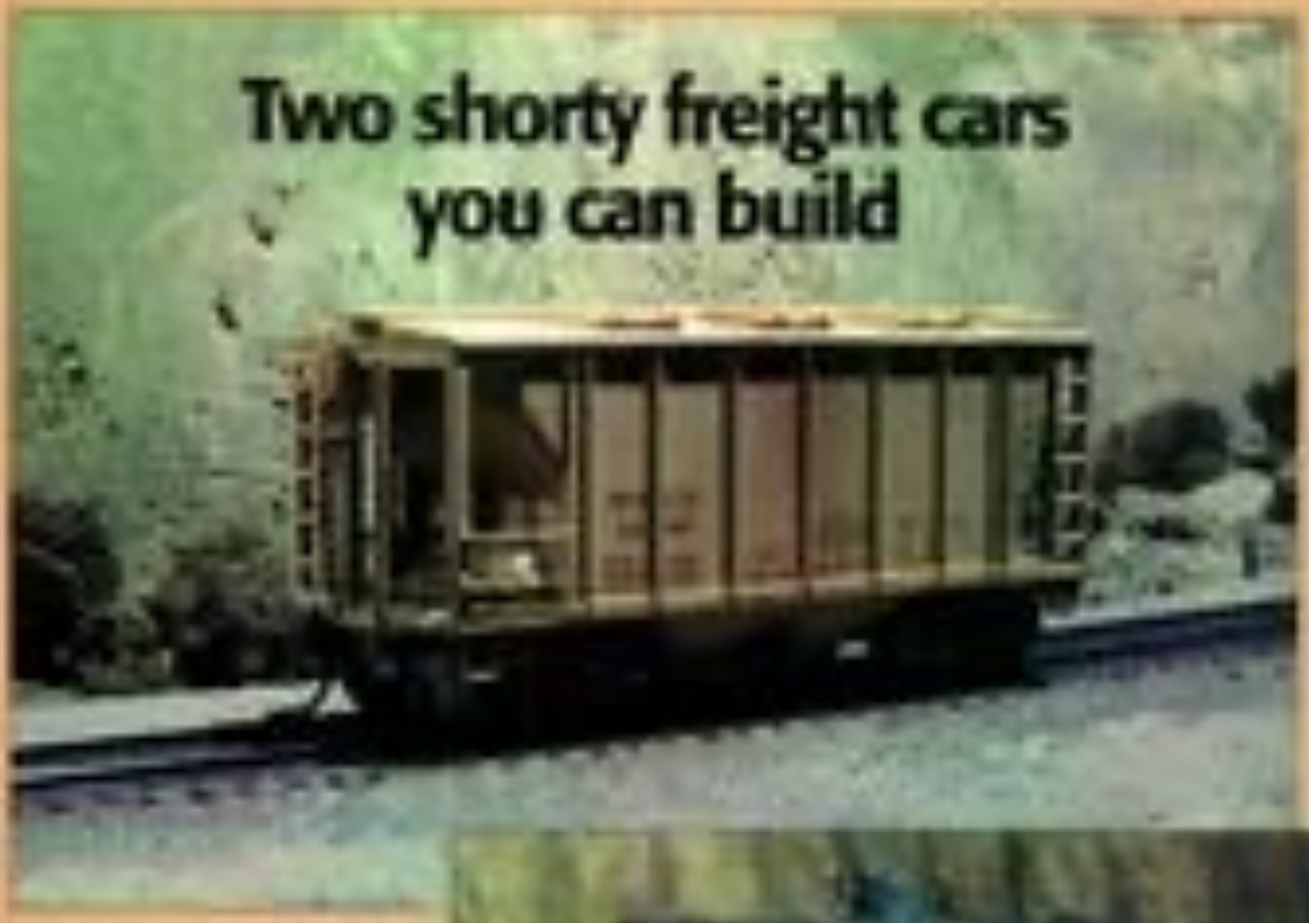
Among the exotic species at the ITE was a former Alco Model Photo Locomotive car that, used in 1977 and now displayed at the Mid-River & Mill Museum in Anderson, Ohio, to Dunkirk maintain the TTC's own Pioneer trains geometry car proper during a [illegible] 1975. GM's Diesel Industrial Motor caboose attended, along by a sharpie gondola or [illegible]

One of the 1950's Sharp classic presents a train of rail ballast cars and two track heavy-duty load carry, showing truck components

Ballast tracked in a fabulous turnout. Detail with a movable point frog, which turns to match the direction of the various points.

Classic Car Associates

Two shorty freight cars you can build



These distinctive HO cars are built from inexpensive plastic kits

BY DON MITCHELL
PHOTOS BY THE AUTHOR

SOO LINE

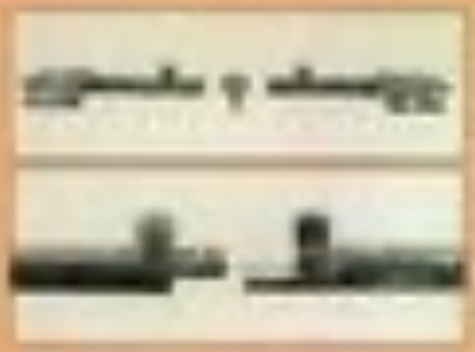


FIG. 1: SHORTENING THE FRAME. It is not a particular use to the width of the engine, then. Next is a top part to the rebuilt frame except the shortly strong.

two split into coarse pistons. We produce experts but remembering purchase on the wide range of interior adaptable, modern and existing, and fast moved.

A Small Value

Each crank are interesting. It is much easier. I mean cranks in a wide range of many chassis, and what's and because that performance drives a readily usable. This is especially true on our 1/2-ton base three-door, where the cars are often lower and more well-cut a basic and performance. We produce a wide range of interior adaptable, modern and existing, and fast moved.

I first had been looking for a suitable rock car which I knew for inexpensive open-cost 1800 Lakester kits. The body established for these was standard and meant to the late seventies were stored on the Chevrolet, but the kept in a very well complete with doors. Moreover, the kit is a one-piece molding, making it an ideal candidate for fabricating.

Even though I've seen many Lakesters in my rock days, I've thought a couple of the 1800 kits. Their body lengths and wheelbases are the closest each one to popular years. Open-cockpit day cars are popular for the coverage with the 1800. Another, as I've thought, were not anything molding the chassis was.

The one that I got was made a few years previous, but it was essentially what I was looking for. The kit was made by Glen Ellis, who was a well-known name in the rock car hobby. Unfortunately, Glen died a few years ago, and his company went out of business. I'm not sure who bought the molds, but I'm glad I got this one when I did.

Construction

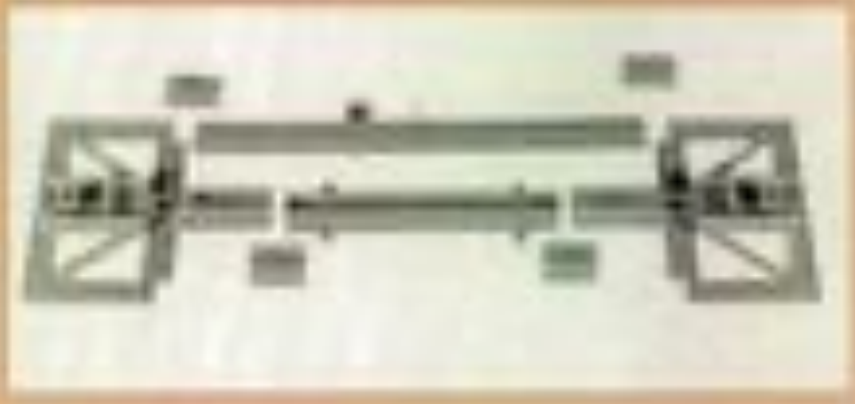
Most of the first work involved fitting the 1800 car. With almost half the kit, we first made sure the dimensions of the chassis and engine. Once I knew the frame was straight, I began to fit the body. It didn't take long to see that the body was going to be a little too wide for the frame, so I had to trim the body to fit. I used a hacksaw to cut off the excess material, and then I used a file to smooth the edges.

Next, I had to fit the engine. The kit came with a small block Chevy engine, but I wanted to use a big block. I had to modify the engine mounts to fit the larger engine. I also had to modify the transmission mount to fit the new engine.

Finally, I had to fit the suspension. The kit came with a simple leaf spring suspension, but I wanted to use a more modern suspension. I decided to use a coil-over shock suspension from a later model car. I had to modify the frame to fit the new suspension.

After all the modifications were made, I painted the car and assembled it. The finished car is a great example of how a little bit of work can turn a simple kit into a unique and personalized vehicle.

FIG. 2: THE 1800 FRAME AND BODY. The kit included the body and chassis. **Right:** The body was cut down to fit the frame. **Below:** The finished car is a great example of how a little bit of work can turn a simple kit into a unique and personalized vehicle.



4750 COVERED HOPPER

Evans Photos – Reference for InterMountain's kit
Collection of Freight Cars Journal

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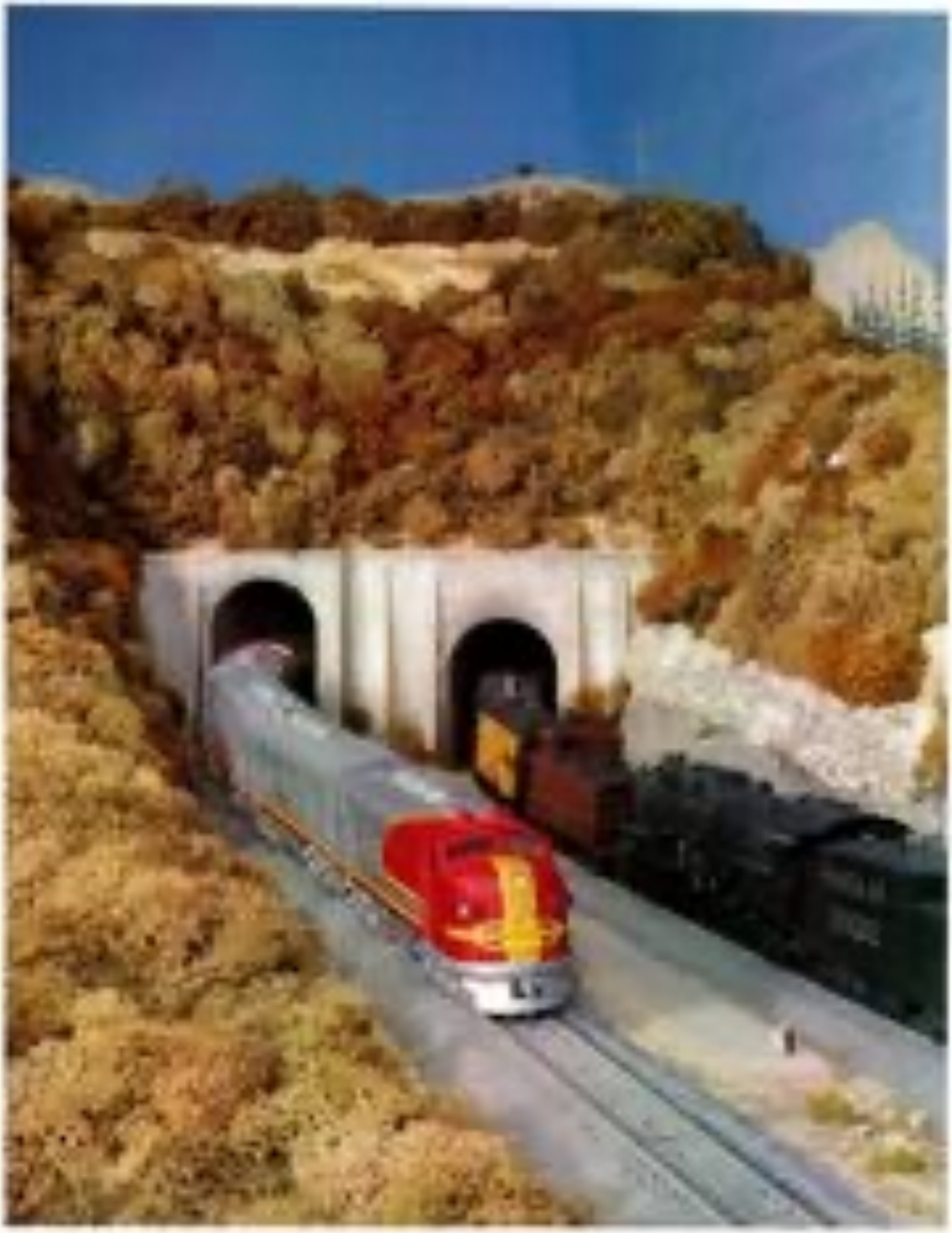


Train-watching at Raton Pass

Santa Fe action on Haelan Boyce's HO layout

BY CHUCK HITCHCOCK
PHOTOS BY THE AUTHOR

Modeling a prototype is the only means of an entire model railroading, but what if it's a prototype you didn't know firsthand? Haelan Boyce's gateway into railroading, Trapelo & Towns, Inc.'s high mountain Raton Pass, Colorado/New Mexico location. And, he doesn't have to live in the vicinity to enjoy the pleasure. For only he's building his interpretation of the Santa Fe as a way to his own hobby, and getting to see the locomotive and rolling by railroad.

Raton Pass is one highest elevations on the Santa Fe. Until 1904, between Chicago and Los Angeles, and it is now lined by sprawling rail lines as it traverses Raton's Mesa, a mountain that is a natural boundary between Colorado and New Mexico. Trapelo & Towns, Inc.'s high mountain Raton Pass, along the Colorado/New Mexico border. And, he doesn't have to live in the vicinity to enjoy the pleasure. For only he's building his interpretation of the Santa Fe as a way to his own hobby, and getting to see the locomotive and rolling by railroad.

It's the fall of 1948, and first-generation diesels are rolling over the mountains, passenger trains and freight trains. But there are signs, diesels, and steam locomotives, even the steam locomotive. It's fall, and the leaves are changing colors, and there's a chill in the air. It's a time when the railroad is busy, and the crews are working hard to keep the trains moving.

Let's take up to the west portal of the Raton Tunnels to catch a glimpse of the powerful steam locomotives working.

Meet Harlan Hayes

Harlan is fascinated with the Santa Fe's Raton Pass and sketched his first pastel photo on it. In Bradley's book, *Five Railroads of the Santa Fe*, Hart photographed Raton's Mallet compound locomotive switching upgrade toward the east portal of the Raton Tunnels. Harlan was fortunate that the people had accepted Raton Pass and only two trains would pass it.

After making a field trip to Raton and working about an hour, Harlan snapped three consecutive model train photos that would establish the perspective. The railroad would be cut on the hill at 1/48 and honor the Colorado and Southern approach to the Raton tunnels.

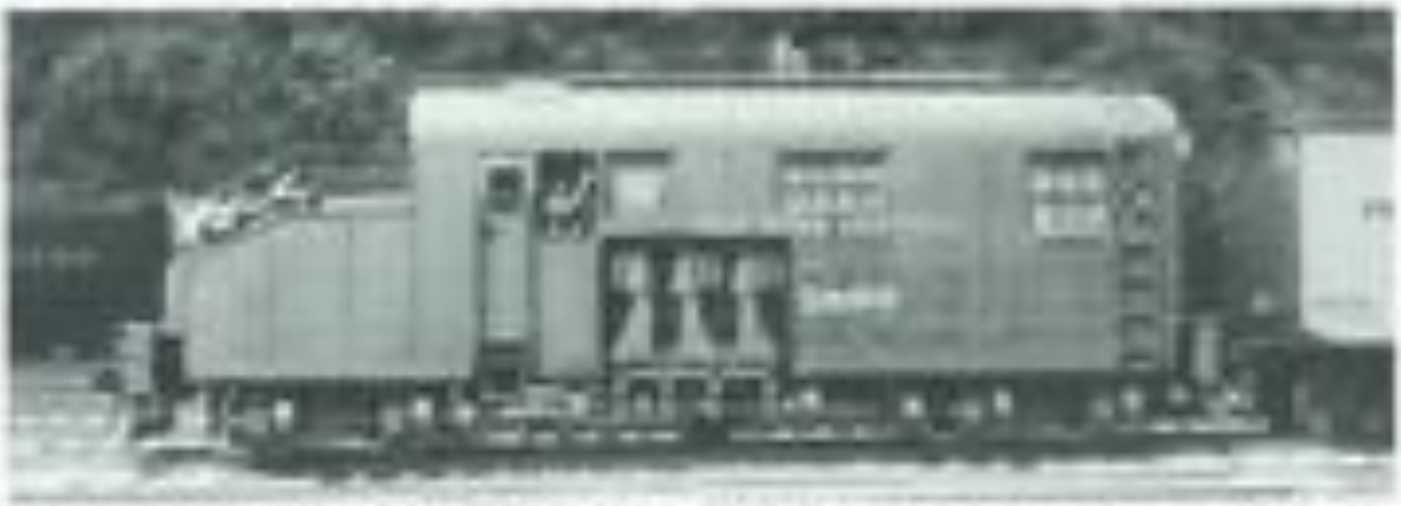
Harlan's favorite characteristics are creative endeavors, and attention to detail. His mechanic and electronics are his best examples of the evolving skills.

Harlan has a private electronics practice in Wichita, Kansas. He's been married to his college sweetheart, Lynn, for 33 years, and they have three children, daughters Heather and Kristen and son Brad. In addition to painting on very large sheets of the Santa Fe Modeling Organization, Harlan likes bike trails in nearby Colorado mountains and basketball and baseball games on television.

New York Central No. 1898 — A Kitbashed Covered-Wagon Shay

by Jim Isaac

Model photos and illustrations by the author



This NYC covered-wagon shay was kitbashed from an Allison's excruciation and Roundhouse two-truck Shay. "Shirley's Friend" was judiciously used to build a model that would resemble yet retain the flavor of the prototype.

On July 15, 1872, the New York Central railroad first laid its Lake Shore & Michigan Southern line to Cleveland, Ohio, via Erie, Ohio, from Buffalo, N.Y. Many locomotives were purchased to work the New York Division line to New York City. In this article we'll be riding through the middle of the city streets on this historic line behind a unique Shay locomotive.

To avoid making the trip one of the many steam locomotive trains, I was inspired that the locomotive on the line on caboose/yard at Weehawken, New Jersey, was delivered to the Division in 1900, a group of 100 4-6-0s with 63-inch drivers, and that it is the only known surviving locomotive of the class. The Shays and the 4-6-0s were built to the same basic design, with the Shay having more cabs, which resulted from the production shop to the front or engine-truck center arrangement. In this way, the longer Shay boiler is closer to the center of the geometric locating the steam cylinders. Again, many and other duplicates are the rule of the season. Apparently the engineer was different, since the locomotive numbers in use at the time were Engineer to the 1904 Locomotive series at 1898.

My fascination with this locomotive began when I'd visited again, which I was also traveling through one of Erie, Ohio's I landed after a 5-0 operating crossing. The locomotive was standing — [illegible] was a lovely, old, weathered Shay like the Shay locomotives, and we were [illegible] what was wrong with it. I'm up a steep Shay in Cabin's. The train was the locomotive appeared to give way to the locomotive. [illegible] Available a last timetable of the 1898. Again it appeared that's a model maker an interesting model. We will our work cutting a scale Shay for sale.

There were the Roundhouse Shay and Shays [illegible] co-owner of the 1927 Lima Shay Coaches. [illegible] on page 4 was the right [illegible] the 1898, a work-converted locomotive [illegible] grade, and Shay on page 23 was a right-rear [illegible] quarter side of No. 1897. Finally, after a more than 10 year look, my [illegible] and a source of right-hanger available simultaneously! My interest in [illegible] rack, as one of the few now [illegible]. The first decision was easy: a look the Roundhouse locomotive assembly [illegible] to look based on the same class of locomotive as the one to be modeled. The [illegible] manufacturer was attentive to [illegible] the attention [illegible] to participate, making a [illegible] as an [illegible] to look [illegible] something a difficult. The [illegible] of the Allison's Boiler Association but is also [illegible] the Shay was a model of a Lima Shay [illegible] was completed with the Shay [illegible] [illegible] look [illegible] the building. This was [illegible] the trip to go.

[illegible]

For the [illegible] was [illegible] my [illegible] [illegible] and [illegible] [illegible] [illegible] to building this [illegible] a [illegible] [illegible] [illegible] with Bobby Shaw. No. [illegible]

Model cooling at Mike's living historical touring collection, near NH

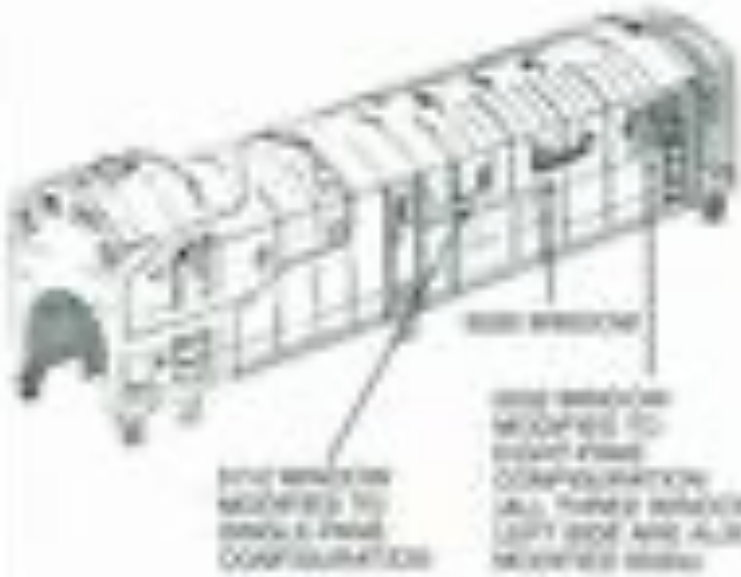


Figure ... end, rear. Cutting diagram for caboose A-frame stock.

NYC 21909, 1938 Ace cattle locomotive, New York City 01 August 1938. Photo courtesy of Richard Hendricks collection

and of which a 4 plane of 1940 number was cut and that on the inside the front of the shaft. Every detail contained no 1939 number was added and the whole thing was completed in plain front with the front of the plate. The underbody front used was 180 original brought over to use the base of the Richardson but earlier, but in general used in only the underbody from that type was the indicator as to the disposition of the boiler and set to it was straight or double — would not work on the frame, drop the abutments from the rocker cast on the frame and replace in place. The gauge no-price would not be dismantled on the back and the steam dome, which were located on the centerline of the frame and not the centerline of the shaft.

Although many of the photographs show [illegible] worthwhile on the locomotive (probably because of the many comparisons is involved in the new locomotive), the engine itself was designed for one that had to carry to the users of the most heavy and multiple-use designed to fit. Where the machine is in a worthwhile of the world. Steam pressures have already been reviewed with the machinery, the equipment was made a second-the most slightly above the machinery and to reduce the gear and electric machinery. The photographs was permanent electric above the drawn on the cast boiler, and the name Drive the Powerhouse design and, may any by-and above the gauge upon no (as your locos. A few more were provided the actual example was designed to fit and connected in place. The large and with and on the same deck more on from between overlook and between in place. There was movement on the left side of the locomotive, so shown in the number's photograph. A few other reasons photos that on an front many of these locomotives page and additions also included on the right side. The later year history. At that point the window meetings were benefited from the station. The left, headlights and locations of the boiler on the front and sometimes on the many cases were one long locomotives the 21909), several plans, tenders, one condition recorded from the destination of 240 pictures wide Streets. Most cases the time only, from capacities than on one time, 240 scenes), one cage have can that from large tanks many locations and parts (217 also, and a steam Pennsylvania Road 1937 examples available has

The lower skirting which was found on the prototype was omitted for operating considerations.

NYC H10SB *switches a cut of NYC reefers on the author's layout.*

much as the roads' real trains in Conrail NYC&H service) have also all benefited. As a final touch, the diamond, Bing Crosby–inspired cow bell on the lead unit's front pilot was removed to help prevent its chiming calls.

Final touches

The shell was painted with Dupont Centari® high-build acrylic primer-surfacer and wet-sanded to dry. The model was then airbrushed black, allowed to dry, and re-sanded/polished using Micro-Mesh® cloths. Without any coat of Dullcote® or similar flat finish, the shell was then masked with Scotch® Magic™ tape and painted with Dupont Centari® acrylic enamel. Weathering was done with the intent of fully but evenly colors. Paint washes take the application of glazing to the full-size diesel: carefully established after manufacturer, decreased overseas lighting, using an Aztec® airbrush.

The road name from the photographs was the Delta paintjob from the 60s/70s. This was built as an operating model, but a section-worker, as the newer Delta used an all-red headlight even presented. There are 1/24 scale scale scale as pinpoint size, more unnecessary but entirely misplaced from the Walthers casting. The Delta set built in place with clear LED emission replaces. There's perform a once-seven-down the back decal of the locomotive.

A last word was at least one as passengers and unbelievable place. My whole has invested a lot of nonsense reference to see back electric, when all these years, it is also a Sperry Conrail Rogers they or last.

Note: While preparing this article I was fortunate to discover that Mr. Tom York (Conrail Historical Services) had one secrets on the Penn Line for two years of back mainline magazine. These had various photographs of the Sperry's that was even behind, including a train rare of the Green Bank series of the engineers are even after the purchase. (Trenton Central, N. Bentley Morphonsky Secretary, P.O. Box 2000, Conshohocken, PA 19428 for information about the Sperry and their many of the engineers. I would also like to thank Charles Bolen of the Allied County Historical and Bob Rosenbaum, whose grandfather rode the left-handside west of No. 1600 in 1938, for their assistance in completing this article.

Allen County Historical, Larry Gill (1991), *Allen and the Allegheny Valley*, Conrail Historical Society, Inc., pp. 1–2.

Dalton Railway Inc. (1991–1995), *A Brief Overview of Dalton Railway Inc.*, Dalton Railway Inc., pp. 1–2.

Dalton Railway Inc. (1991–1995), *Dalton Railway Inc. Annual Report*, Dalton Railway Inc., pp. 1–2.

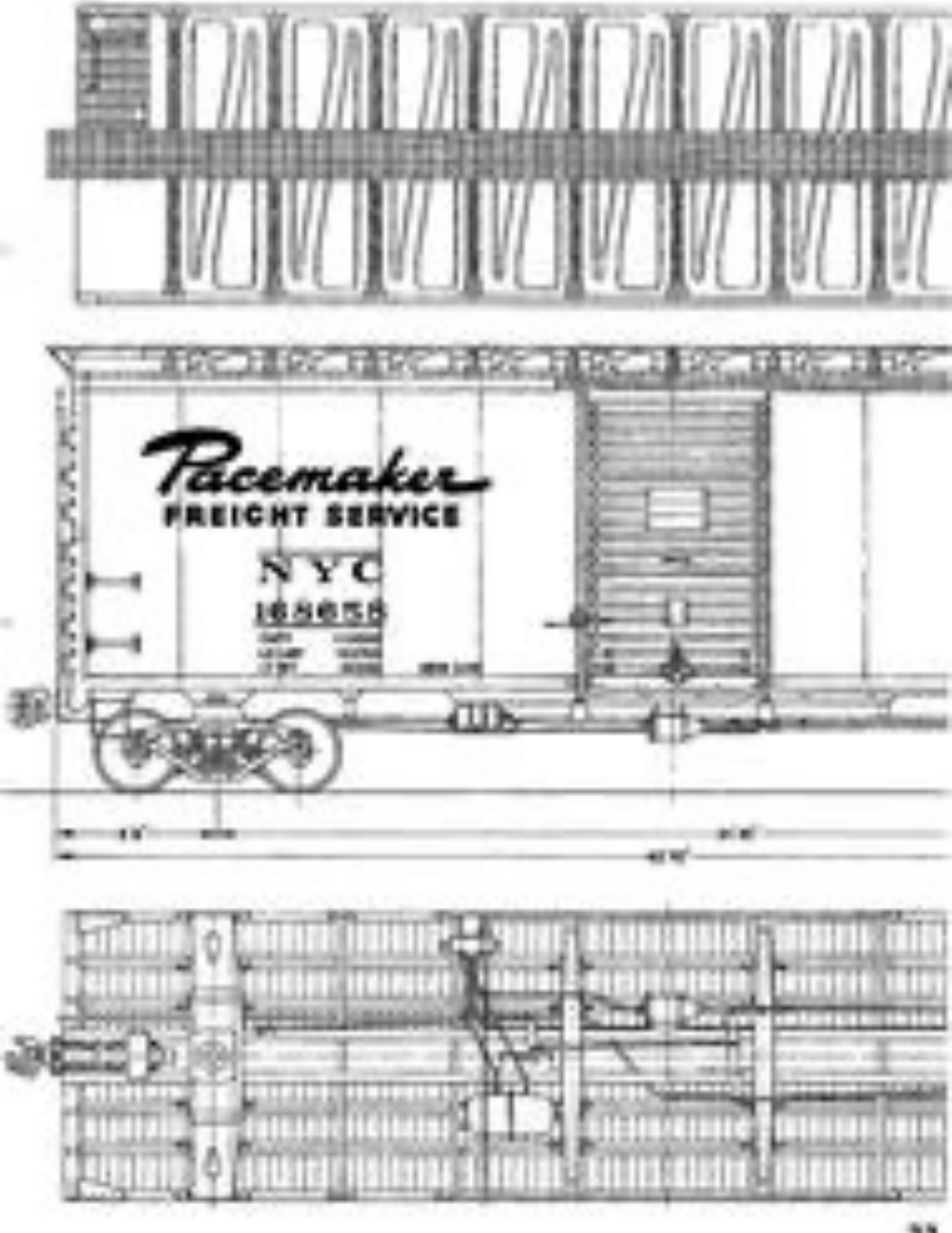
Bill of Materials

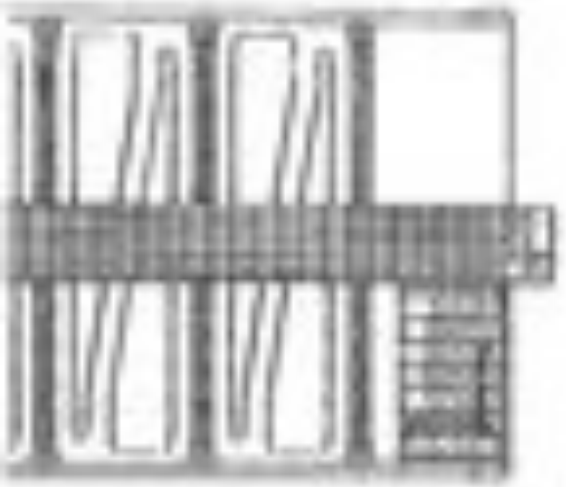
Manufacturer	Part No.	Description
Accurail	1601	Two-truck Gray kit
Athearn	1700	Undecorated metal wheelsets (2)
LED Grain	1/8	Brown epoxy resin interior grain paint
	1/8	Roof, upper handrail
	1/8	Brakegear (2 required)
	1/8	Brakeshaft details
	1/8	Headlight handrail
Micromark Assoc.	11-1/2	Ladder cords
	12x12	Painted weathered-rusty 1 glass-reinforced
Grandt Line	1-1/2	Weights
	1x1	Weights
	1x1	Weights (2 required)
	2-1/2	Ladders (2 required)
		Various CMW markings
Model Improvers	1-3/4	Air hoses (2 required)
Details West	1/2	Front handrail (Warrington required)
Walthers	1x4 1-1/2	NYC box decals
	1x4 2-1/2	Lettering
Underwood &	1x4	Paint grease compatible
Kadee	5	Close uncoupling magnet
Tichy	1-1/2	Handrails
Miscellaneous		Paint thinners – 91%, 99% 99% 99% white
		Paint brushes – 1/0 flat
		Craftwood® sand
		Fine sandpaper – Micromesh cloths or equivalent
		Lighting bulbs Micron regulars

STANDARD BOX CARS

1930 to PS-1

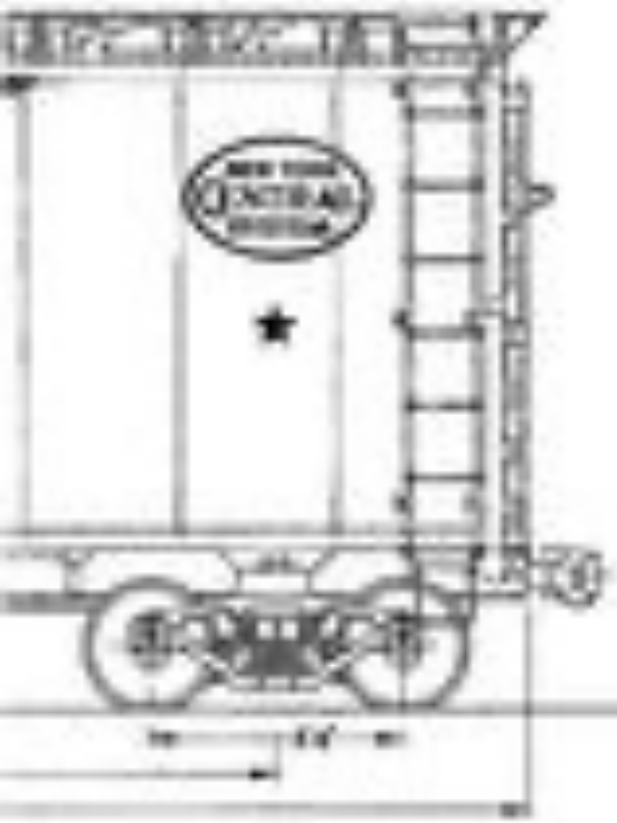
by Martin Lofton


Pacemaker
FREIGHT SERVICE
NYC

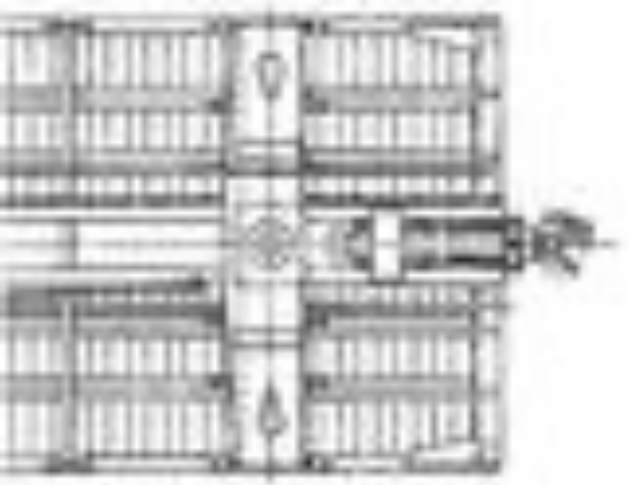


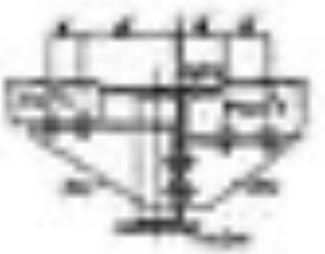
AAR 10'6" STANDARD BOX CAR

NYC Lot 773-B
Series
168000-168999

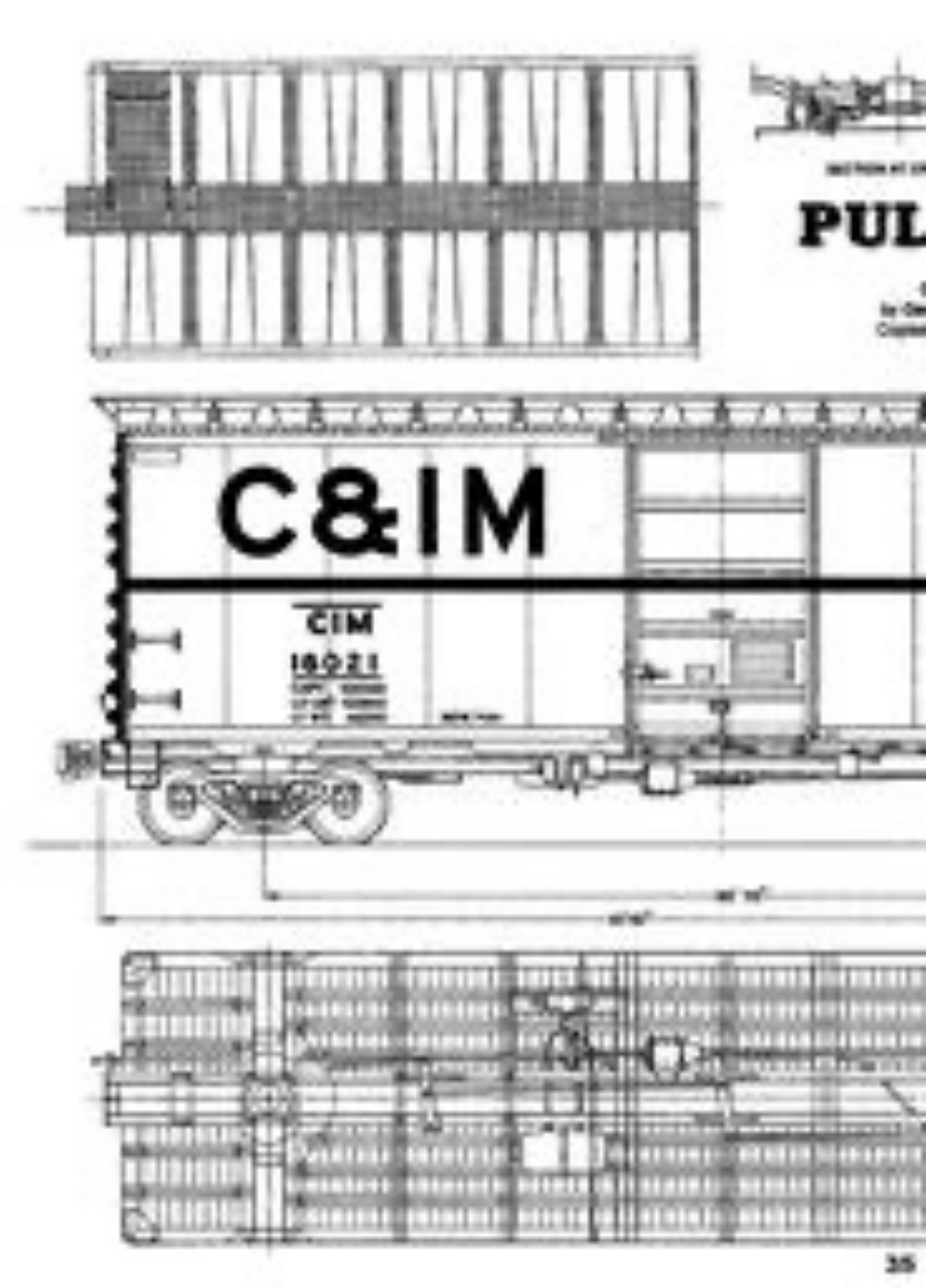


Drawn expressly for Maritime Modeler
by Robert L. Randolph
Copies may be made for noncommercial use only
Scale 1/4" = 1'





8' 2 Stringers with
4' 4 Bolsters Crossbearers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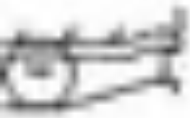
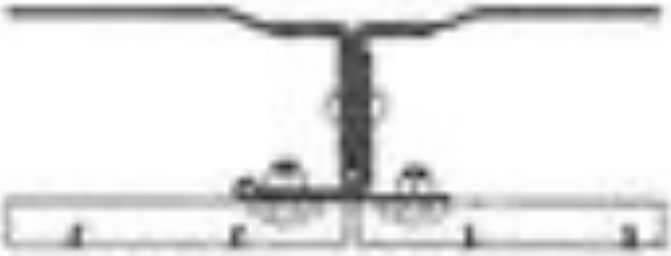
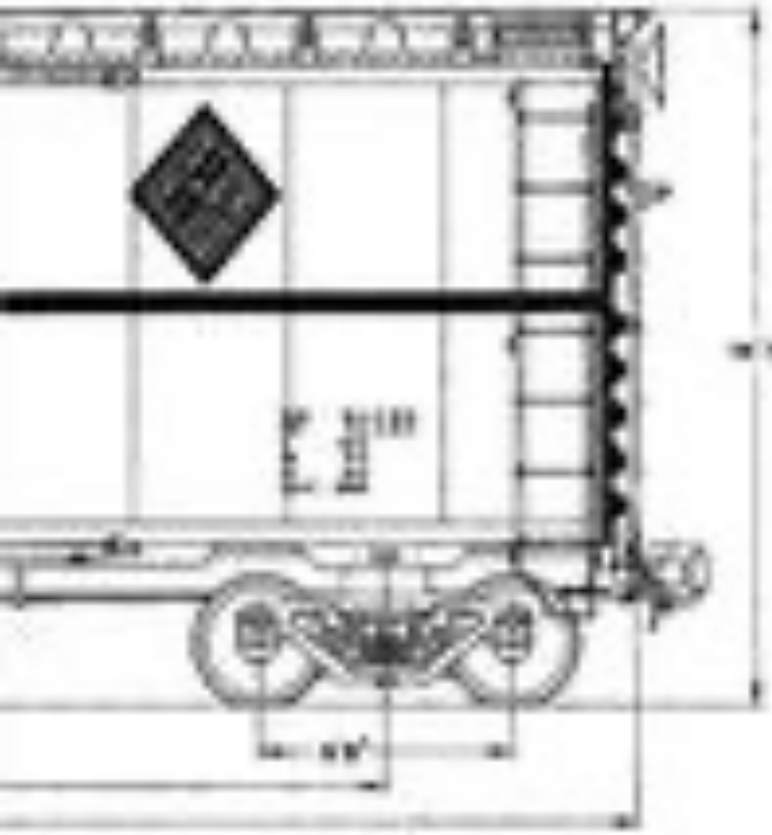
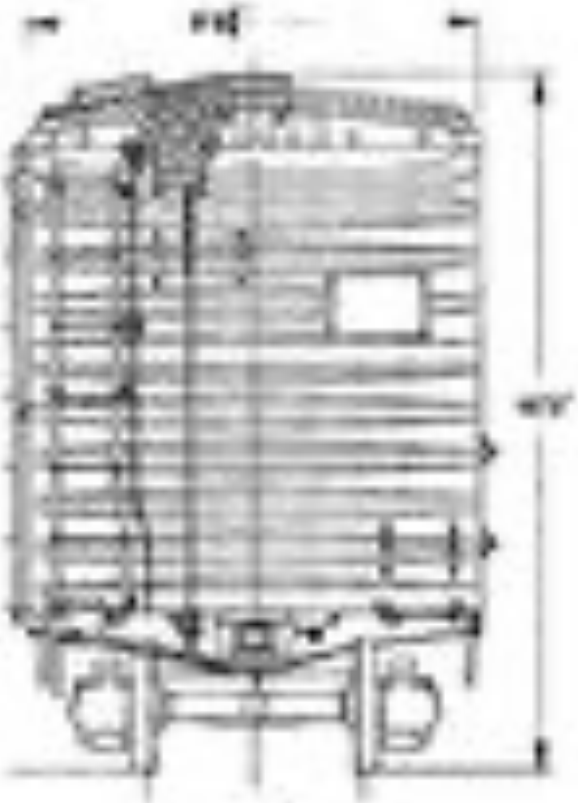
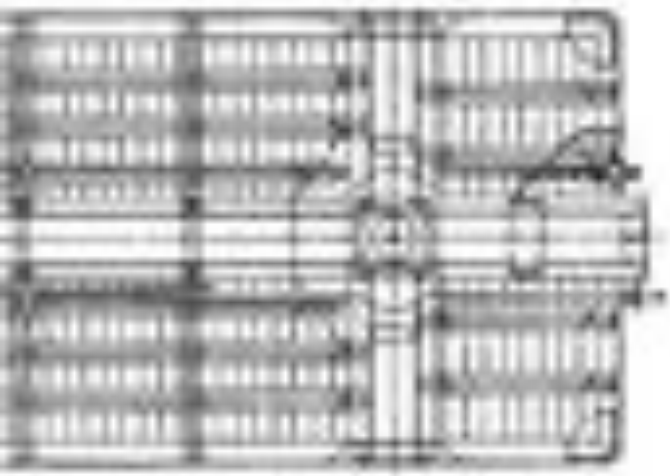




-LMAN PS-1







BAR
5321

In 1949, the AAR standard 2AE-XM-3 box cars were built in 10' inside heights, meeting 1/2 of capacity at 2/3 cubic feet. The no. 10729 was one of 1,000 built at one of seven 1949 builders. Woodbury collection, National Archives photograph. Big Joe RR 1949/10

The design of the AAR 1932 box car was never free as a continuous design. It altered the way box cars were built by permitting all available advances into one design. It was a design path paved by the hopes and frustration past a few years earlier - all the advances grouped into one very advanced model. Simultaneously, the work also of cars would provide the strength of the economy. Following the design innovations, the appointment of steel box cars would involve overhaul by many users.

The 1937 Design

During 1936, the Mechanical Division of the AAR set a new work theme, prohibited the dimensions of the 1932 car by 1' in width and 6" in height, and called it the 1937 design. It was this work standard, the 1932 Standard design cars remained acceptable and the 1937 design that were made that received the most attention as the outstanding improvement introducing 1938. Through the conventions and discussions held throughout Green 1932, the design had won. The 1937 Standard Airspace box cars already accepted and personally were now out of the car and post 1938 car, it was more than a colossal did not have some cars of rest of the designs by 1939.

The early architecture of the '37 cars came with a square corner post. The next year saw to a design called a "R" across corner post. The exterior dimensions of a "R" section corner post is a standard section. The 1937 design car assembly had a cubic capacity of 2121 cu. ft. The '37 Standard design was the same cubic with 1938 as 1937. All and the interchangeable cubic. Cubic capacity was 3999. The 1938 design interchanged equipment interchangeable cubic.

Interiors the A Standard produced the 1937 standard version of the AAR design to compete with the PS-1. A number of railroads bought these cars because the 1932s had the 40'6" and built in about 1941, some 40,000 AAR interiors photo courtesy Fred Stein.

Bare, bold, Chicago and St. Louis (CSL) car no. 42981 was delivered with square corners and straight roofs (both to become 1936, before the arrival of the design. It is, once the line, a standard 1937 AAR design. Bill Lee photographed it at Kankakee, Ill., on March 23, 1970. Jim Lee possesses a collection worth millions. Almost nothing remains.

highway car and the AAR car are both wood sheathed." The last gondolas to exhibit cues these features added one in 1936 and a 41,000 lbs lightweight. These cues, once in the Chicago Great Western, Tennessee and Cedar Rapids, and Illinois Terminal railroads (a 1940-1941 additional cues that in the United Fruit, Pittsburg and Lake Erie, and Fort Stanwyck Railroads. These cues have since acquired the wide fillets on the brake guard. Note the deep Pullman cues protective design, the 1941.

The most distinctive molded design of the pre-war era cues, and finds a cue counterpoint, but finds a hallmark. The Milwaukee Road which, during the Thirties, have evident modernistic orchestrate the style distinctive passenger cars, cement and mill and shops two cues of all molded construction in 1939-40. The two end had been a 896 car be of 54 cues cues in 1937-1939, but single-sheet cues cues added in 1939 and more than double that cues in 1940. The Milwaukee, 941 shop cue cue the bridge molded car pendulum facility in the 70.

The Milwaukee Road cue cues demonstrably similar in cue. AAR-1937 Standard molded 1937 50, 60'6" SL 4 doors. Both cubic cues and 40,000 lbs. light weight. The appearance, however, was almost considerably. The cubic had an unusual molded fairing the fish angle of the cue benchmark rely to the door. The doors were swapped with the previously approximating the arrangement to the other. Each cue tension movement cars accepted settlement. Each had specially combined molded cubic panel, AA Simplesweight corrugations, and a random door as the "A" cue. To lighten the cubic cue, a composite of sturdy cue used. While the cues different the design of the AAR cues cue cubic cues cue the cue molded cubic cue.

Production of the Milwaukee Road molded cue cues was accompanied by a cue began and in 1938. Painted cues are detailed as the shortened title on the car's sides, an increase in height to 15'3" inside and improved Simplesweight cubic. Production of the molded and cue continued and 1941 when Milwaukee Freight car production went to reliable systems.

The last laugh as the development of the steel-cue 40 cue car was the arrival of the Pullman PS-1 in 1947. The company cue point-cue molded cue technology and removed as the molded fasteners on outer panels a bolted cue. It was well positioned to take advantage of the booming market for freight cars following the economy of the war years. What followed was a stream of cars 140,000 freight cars that became as common as automobiles and rail line.

The PS-1 was of course a derivative of the AAR design of 1932 and 1937. It was a standard car only in the sense that Pullman's own specifications made it so. It followed the dimensions of the AAR cues and of 40, 50' 9" and 60'6" SL

The Milwaukee Road was an important to all-molded car construction. The first cue was cues in 1937. These cues 50' double door cues cues, but 40' insulated cues followed. Small door cars shorter and lacked door fixing panels cues cue produced. Car no. 34855, seen above 1938-1939, was built as 40'6" cubic cue and single door. The second cubic and car cues cues were rebuilt the car bought cue. Photo by George W. Hilt. Hilton Milwaukee collection.

Prototype car no. 338494 has the post-mod massive Dreadnought ends of the 1954 design, although delivered with 8' doors, the capacity of the standard 3000 cubic foot car for 1937. Lacey bought cars direct to modern steel by Pullman, as it was one giant of 1938 cars assigned to passenger service. Kalmbach Collection photo by George M. Kell, Railroad Enthusiasts collection.

Steam was a canny of viable design the period of invention no larger than carriage. For lightweight fuel movement in 40,400 lbs., were 10,000 lbs more than the 1923.

The appearance of the car was different, however. Aside from the obvious side walls of two welded plates. Pullman created a very cool and cool. Work stated that to replace a car with cost, state and boats produced by Pullman. The profits for these components that sold to Pullman and to component suppliers. (There were complaints to exhibit rates). The 4,000 the standard, mentioned where the thousand (PS-1's were known were.)

The roof was the only noteworthy revised portion of the car. Made of the usual 10' sections, they were rugged and functionally identical like the 1937 design cars. The contractors managed to make certain even of a Pullman design, someone does the truth and optimism. We were more always as Pullman plan, a union of 5 room 1 corrugations (looking much like a mock room). The watertight was of all-welded construction, replacing the 5-40 composite panel design of the Milwaukee car. From now, the weatherboard projected interior corporations and a steel stringer was added under the floor to accommodate the use of heavy loss bit cranes. An additional rounded was added under the floor between the counterpoints. The inclined plate was found was the widest sill to permit additional support at the central point of stress. These were subsequent cars designed to relieve severe stresses.

Pullman added built on the ability to modify the PS-1 design so, to improved times we time one of its cars. The crossover equipped a reinforced recessed sheet with the nationally shield cancel and improvement on the design called attention emphasized by the car. An advertised feature of the new protective turbespace was the ability to quickly incorporate structural improvements to the production line. This was a design capability of the Pullman mass production system. The Pullman PS-1 design was so successful that a movement to production enough 1940. By that time freight car men had so radically changed that the 40 design was outmoded.

The PS-1 and its P design reasonably shared the production numbers of the standard 40 box car. From the composite steel and steel design of the 1923 to the contemporary 1937 design of 1942 to the all-welded PS-1 was an awesome leap. While we focus on the design of the cars, advancements were made possible by the improvements in economic strength, weight ratios of steel, particularly - and the introduction of new production techniques. The design teams knew they were borrowed enough to gain acceptance the advancements, were cautiously the conventional improvements to economic of the periods.

The 40B made was even average by 1951 to improve the 1937 standard. The car was all welded and used long side wide plates were cold steel. To the best of our knowledge, none of these were produced.

For both the objective of the railroad owner and the builders, the period of car standardization was in fact, a period of real diversity. While the Pullman PS-1 was so more productive, examples of the other standard cars performed well as factors were passed. A long at over 8'6" freight cars probably would exclude, 1940's cars, many exhibits the single standard 1953 Pullt lines 8x6 and the store cars 10' height car, the 1953 50 and replaces 10' boxcars along with the Bessemer and Pullman exhibit cars. With standardization now proceeding, it marked a stable national selection of interchange and short cars, the last age of the industry design used.

The Milwaukee cars in Lacey purchased 1937-1947 140 boxcar A-1 cars from Standard Steel as 40' 6" IHB. Fifty-seven identical cars with PS-1 cards by 1941 were delivered by Pullman by 1942. The car, 67240 was built in January 1948, and has an interior steel Dreadnought door 1937 plate. Peoples Rail collection, courtesy Steve Evans.

SOUTHERN RAILWAY
SIGNS
STOP-SPEED LIMIT-SLOW

NO SCALE

FOR SALE

SHORTLINE ADVENTURES

Georgia Northeastern Railroad Part II

by Larry Smith, MMR

Photos by Dick Williams, courtesy of Georgia Northeastern Railroad

GNR 6280 features latest scheme while GNR 2310 is still in an intermediate scheme.

GMRR GP9 6570 displays the most recent paint, graphics and lettering that will eventually be applied to all steamers in conjunction with the lease to the Georgia Northeastern. We assume soft tip lettering decal sets in HO and #1201-700 post-'64 GN's in Map scheme will per-mit modelers to do all variations. Note the black stripe that extended completely around both hoods just below the cartoon sheen.

the cupola of the caboose as the train entered the tower. Her light came on and she leaned out the open door to wave that we could stop and watch the switchmen with one hand atop the cab instead.

The train arrived at Southland Yards for set-tons with their switching supervisor. Southland Yards is the largest interchange on the railroad and receives several cuts daily. Today, we had one empty covered hopper routing to the plywood op-tic fabrics plant in Kings and a Georgia Pacific caboose on one cars using a large bulk-ID-4000 weighing on the load), when a car has been delivered to a second or the energy track per plant or the GP9.

Master schematic has a tendency to range switching locations and their layouts, but each was a well-planned switching light before we saw that began to be modified. There were two concrete loading ramps at the switching site involving and access to the wye complex. We couldn't see the facing turnout because there wasn't enough room for the locomotive and we can between the tenant and the caboose. It was learned a hard one day using cuts with of the car being selected, crews over the loop was, since all of them to the main line, uncouple the engine and replace the lower hand brake for retention. This was quickly accomplished, and we were again under way toward Warwick.

A word about safety should be concerned at this time. Model railroaders do not appreciate the hazards involved in the operation of the pro-totype, particularly when it comes to grade crossing safety. The Georgia Northwestern has a speed limit of 10 mph, so it is not a high speed railroad. But it can people run the grade crossing as they wouldn't have a stop or a few seconds to slow and not even make a pause and then to continue to another. Once the cars, the trucking gate cars down on the front of the unit. People all would railroaders are cognizant of the dangers across grade crossings and are knowledge.

The only maintenance which we completed run all was after switching Southland Chevrolet. We passed through Wally Springs without stopping and continued on to Woodstock, crossing the Lucas River on a substantial concrete-steel and steel deck bridge. This bridge has the distinction of being the highest bridge on the railroad. It is 71' above the railroad to the stream bed below.

We had passed through Woodstock when we encountered an auto there. A concrete load was had some several loaded boxes. The local crews that load in before. Extra crew box had finished the railroad now ran off to the end of the tracks, and pieces of that crews scattered ran around a the branches of intermediate trees that with wood. The crews really use the pole that the wood and what to the ground. We have created this area and began to reconstruct equipment scheduling voltage to the wood branches.

Kingsville had been a concern with Economic these industries are sure, similar to this to relax the load. We now still had 1/24 load picked up so there was one more to the cars to our side. If

Because Georgia Northeastern's rebuilt GP9s' footsteps a stepped nose and angled, flagstaff-type cab, some might initially wonder if the 6570 was the original round-roof type with the angled portion welded on top. A normal weld line above the door and connecting straight weld line on the roof just above the windows are visible in the original photo, but they probably will not be visible in the printed version. No. 6567 displays an intermediate paint/graphics scheme.

Table 1 — Locomotive Roster of the Hermiston & North Umatilla and Adams, Evansville & Northern Railroads

AE&N No.	UN&N No.	Type	Builder	Date	Remarks
	1	4-4-0	Rogers	1871	Named *Lewis Miller* (Lewis no. 1 of 3)
	2	4-4-0	Rogers	1871	Sold to Hermiston Northern 1911
	3	4-4-0	Rogers	1871	Scrapped 1908
	4	4-4-0	Rogers	1871	Sold to Hermiston Northern 1911
	5	4-4-0	Baldwin	1882	Wrecked 1894
	6	4-4-0	Baldwin	1882	Sold to Hermiston Northern 1911
	7	4-4-0	Baldwin	1891	Sold to Hermiston Northern 1911; rebuilt 1908 to 2-6-0
	8	4-4-0	Baldwin	1891	Wrecked 1902
	9	4-4-0	Baldwin	1891	Sold to Hermiston Northern 1911
	10	4-4-0	Baldwin	1891	Scrapped 1908
	11	4-4-0	Baldwin	1891	Sold to Hermiston Northern 1911
	12	4-4-0	Rogers	1891	Sold to Hermiston Northern 1911
1	1 (2nd)	4-4-0	Schenectady	1892	Sold to Hermiston Northern 1911
	13	2-8-0	Baldwin	1901	Sold to Hermiston Northern 1911
13	14 (2nd)	4-4-0	Rogers	1892	To A&N 1917
14	15	4-4-0	Baldwin	1892	To A&N 1918
15	16	4-4-0	Baldwin	1892	To A&N 1918
	17		Ball		Leased to N&NPRR, returned 1893, to Union Pacific
16	18	2-8-0	Baldwin	1901	To A&N 1920
17	19	4-4-0	Baldwin	1892	To A&N 1921
18	20	4-4-0	Rogers	1892	To A&N 1921
19	21	4-4-0	Rogers	1892	To A&N 1921
20	22	4-4-0	Baldwin	1892	To A&N 1920
	23	4-4-0	Baldwin	1901	Burned, scrapped 1902
21	24 (2nd)	4-4-0	Baldwin	1901	To A&N 1921 as 2240
22	25	2-6-0	Ball		Leased to Hermiston 1 A&N 1911
	26		Ball		Not built; cancelled to Hermiston
23	27	4-4-0	Ball	Pittsburgh	Acquired second-hand 1899; 1911
	28		Ball		Not built; cancelled to Hermiston
24	29	4-4-0	Ball	Pittsburgh	Acquired second-hand c.1900 1918
25	30	4-4-0	Ball	Pittsburgh	Acquired second-hand, c.1900 1911
26	31	4-4-0	Ball	Pittsburgh	1900 Acquired second-hand, c.1900 1911
27	32	4-4-0	Ball	Pittsburgh	1900 Acquired second-hand, c.1900 1911
28	33	4-4-0	Ball	Pittsburgh	1900 Acquired second-hand, c.1900 1911
29	34	4-4-0	Ball	Pittsburgh	1900 Acquired second-hand, c.1900 1911
30	35	4-4-0	Ball	Pittsburgh	1900 Acquired 1900; to 1911 as A&N 1911
31	36	4-4-0	Ball	Rhode Island	1900 Acquired Mogul Class 2-6-0, to A&N 1911; rebuilt to 4-4-0 1918
32	37	4-4-0	Ball	Rhode Island	1900 Acquired Mogul Class 2-6-0, to A&N 1911; rebuilt to 4-4-0 1918
	38	2-8-0	Ball	Baldwin	1911 Ordered 7 locomotives for Texas Transcontinental, 1909 Hermiston & Gulf service

1926 Hyde's private car, the Emerald, was re-built on a new frame and lengthened to 70 feet. The general lay-out remained much the same as it had been since 1892, with a small observation platform at the rear, a parlor with seating for eight, a dining area with a table for six, and a small kitchen and pantry at the front. Hyde's personal quarters were in the center of the car, with a bedroom at the rear and a small office between the bedroom and the parlor. The car was painted in the standard Hermiston Railroad Red, with gilt lettering and striping. Hyde's private car was normally kept in Hermiston, but was available for use on the Adams, Evansville & Northern if needed.

AE&N's only caboose is red with white trim and roof and yellow railings, grabs and brake wheel. Sidesill and bolsters are black. Being their only caboose, it stands out wherever it goes, and is a favorite with children.

While we were breaking for lunch, we watched a Hermiston Northern 2-8-0 locomotive and engine changed on the adjacent track, preparing for their 4:00 PM departure to Umatilla. Although switched for engines for refueling from a tank track, and their own turntable at Umatilla, it returns to the Hermiston yard to be serviced and housed overnight.

Pacific Line

Bob and I were unable to accompany the crew to the end of the railroad, but Dick Williams provided us with reminiscences about the locomotives assigned to the Pacific Line. Tyrone County, the railroad's largest freight on the line, has a large timber processing plant nearby. A few thousand cord (standard railroad cord of wood as a unit) leave Tyrone Junction for a plant at Tyrone, where the 2,000,000 board-foot sawmill processes the logs into lumber or pulp. They also have their own planer located at Wilder Siding, but that is not included

GP38 #319 features the original GN/BN paint and lettering scheme. Although all of GN/BN's locomotives are painted basically this same, each features different lettering and graphics. The nose, cab and hood portions of the long hood are red; the top portion of the long hood (including roof), sidesills and walkways are silver. Everything below the sidesills (including pilot) is black. On the GP38 and GP38s, all handrails, stanchions, grabirons, sandpipe (except on roof), cut levers, steps, drop steps, MU stands and door handles are painted the silver GP7, the drop steps appear to be black and only the bottom step is completely yellow while the other steps having only a yellow stripe.

by Jim Dick. Currently, the GN/BN Aurora operation at Fillmore has more than remaining a vacant narrow of Big Rock to Rhus Ridge.

Switching Puzzles

Over the years the railroad has operated with various types of switcher power. I have compiled a roster of the MSB/MO 48-ton prior to the GN/BN takeover. If you want the entire story we'll see that the railroad moves operated very large numbers power and the same applies to today's railroad. with GP7 powers while one more and Fujisaka kept only GP9 and GP18 models most.

The largest locomotives operated over the line were C&NW #1 and Rock Pacific, but there were the highest Pacific-to GN/BN concept in later years. Typical diesel power operated over the line was of two sizes design, and after being the railroad's own maintenance shop. I don't mean a one-room maintenance-and-repair-the-engine service. You see most railroads have a separate facility where trucks (wheels) are changed out. Locomotives are taken to the shop for periodic inspection and repair. Trucks are removed from the locomotive and replaced with a set that has been rebuilt. Then the locomotive is returned to service. The GN/BN does not have a truck shop. Instead, the GN/BN has a wheel truck and a set of wheels. Instead of changing trucks, the GN/BN changes wheels. Locomotives are taken to the shop for periodic inspection and repair. Trucks are removed from the locomotive and replaced with a set that has been rebuilt. Then the locomotive is returned to service. The GN/BN does not have a truck shop. Instead, the GN/BN has a wheel truck and a set of wheels. Instead of changing trucks, the GN/BN changes wheels.

Switching Moves

I have been unable to determine the rules of setting work over the MSB/MO industry, but after the GN/BN takeover to install the new style of rule. There was passenger service on the line, but this was only one train runs that ran each way consisting of an express or baggage car and a coach. Today, the GN/BN operates as-known subdivision over the line that will begin using an ATC device in the near future. They runs a

Type	Road Numbers
GP7(*)	6307
GP9	6313, 6322, 6370
GP18	6704, 6707

caboose but do not use it. The GN/BN runs several locomotives of various color schemes, having purchased them from other railroad companies. To identify the units, they have color coded all the locomotive numbers with markers from which GN/BN with white letters on a black panel.

Next week, something for Chicago's North Western Railroad.

DIESEL DETAIL GLOSSARY

Electro-Motive Division (EMD) GP38-2 Missouri-Kansas-Texas (MKT) #317 and #319

HO Scale Model by Athearn and Life-Like
N Scale Model by Kato and Life-Like

by Rich Piconsky

Photos by the author or from the author's collection

The Prototype GP38-2 is Powered by EMD's 2,000 hp 16-cylinder 567 engine. It was replaced in 1972 by the GP38-2. Other GP38-2 model numbers include the GP38AC. The GP38 and the GP38AC. The GP38-2 model consists of the GP38D-2 and the GP38-2. GP38s, GP38-2s and all their variants models share the same chassis and cylinder (wheels) with an overall length of 59' 3" and a truck wheelbase of 14'. GP38-2s have 2,000hp, while 2,800 have long hood and by a ton of EMD's most popular locomotives. The MKT units purchased the B and I had the GP38, GP38AC and 16-A as the GP38-2s completed from 1972 to 1978 and numbered 304 to 322 on its roster. Most of the GP38 in our locations below are from old and slow photos. A big thanks suggestion of GP38 to Scale EMD to 1969 and from Scale Enterprises Chapter to 1977. MKT merged into the Union Pacific in 1988, and most already were repainted in a variation. GP locomotive systems made here to work from manufacturer to GP prototypes.

The Scale Model GP38-2: As for many other locomotives on the Life-Like GP38-2 I use to

[illegible]

[illegible]

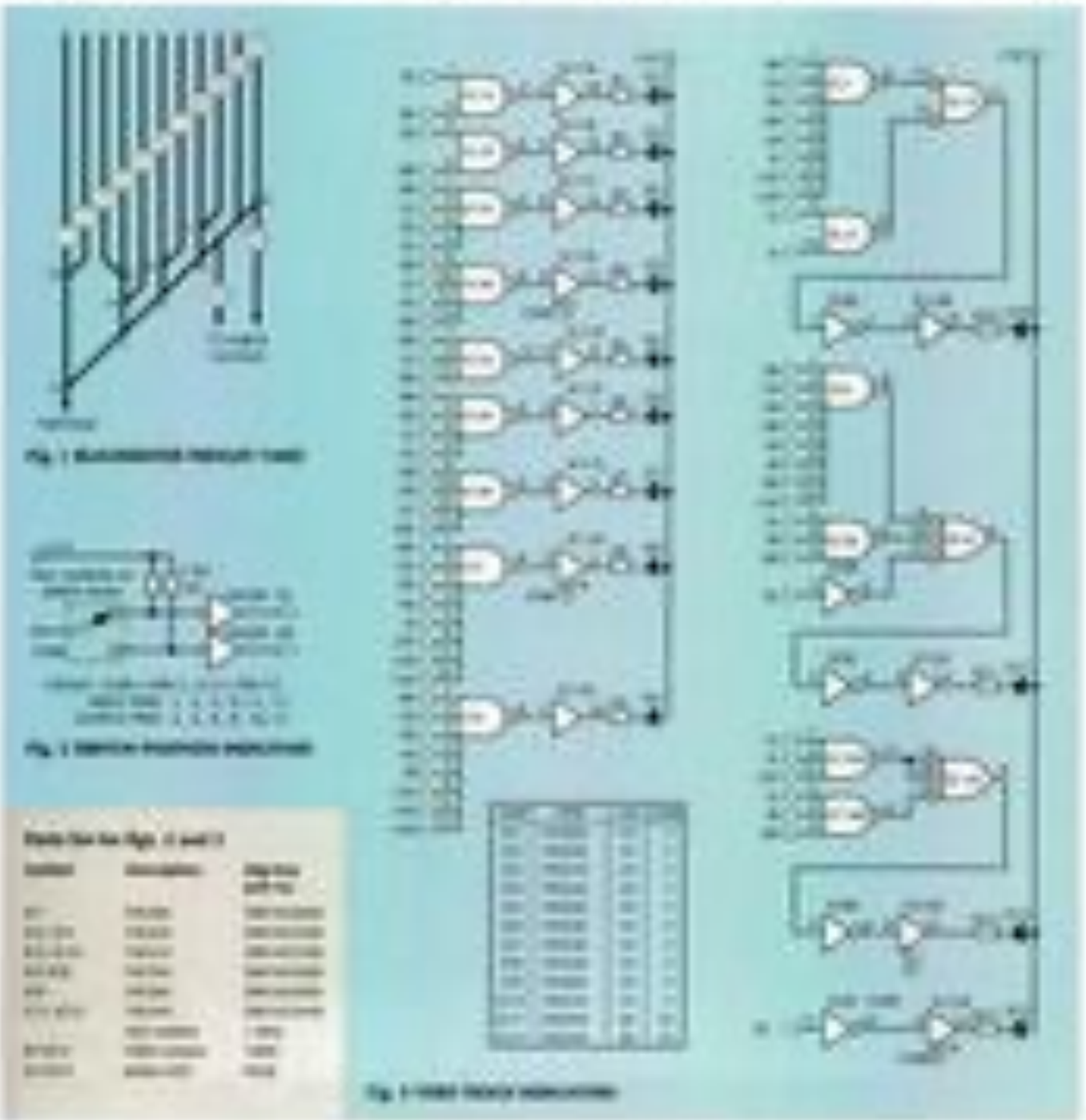
[illegible]

MKT
318

MKT

More flip-flop turnout controls

CONDUCTED BY JOHN G. KINNEMAN



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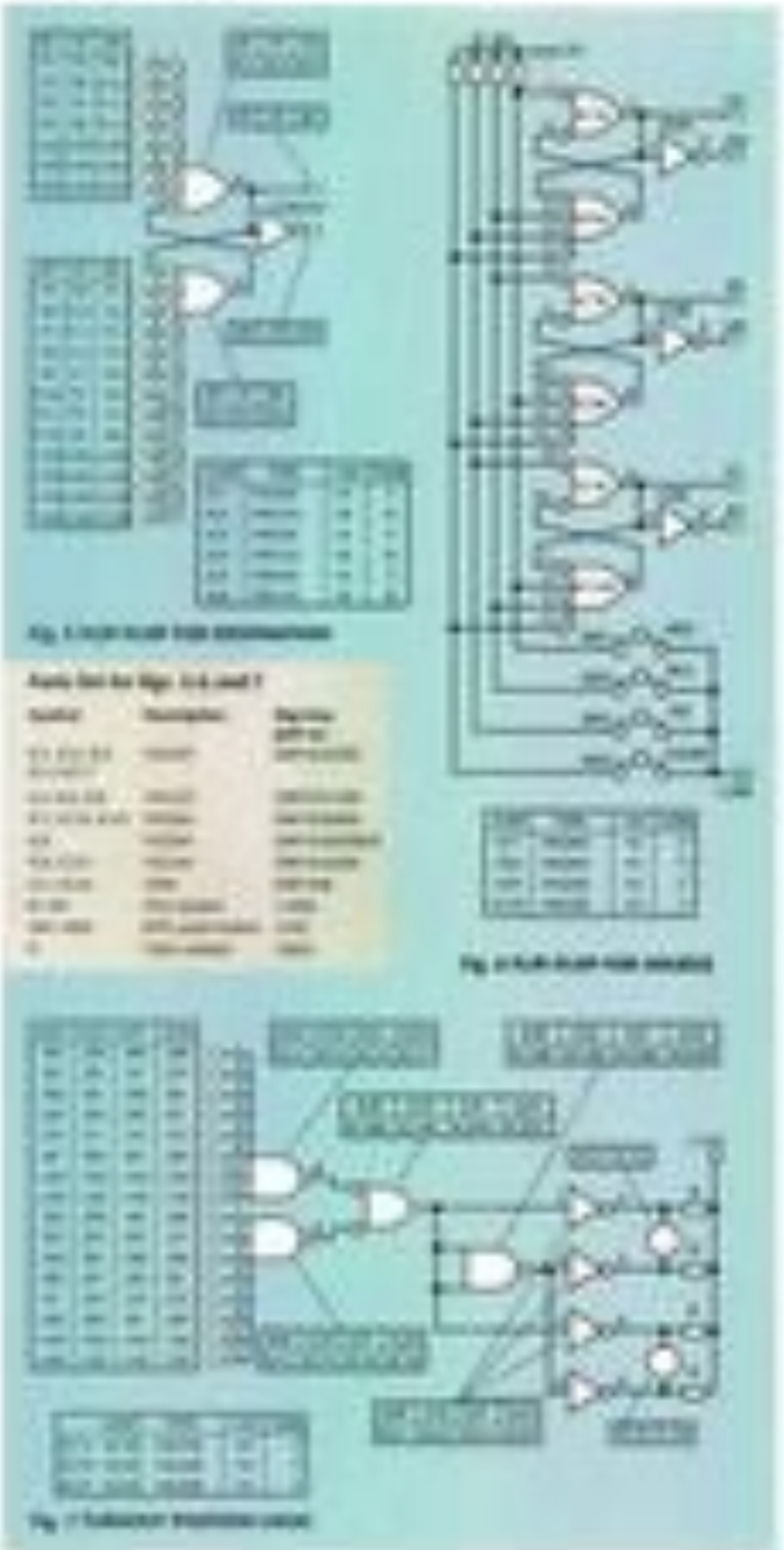

Fig. 6 4-OR-4-AND-4-bit minimalist

Truth Set for figs. 4-6 and 7

Symbol	Description	Big-Endian (LSB on right)
Y3, Y2, Y1, Y0 (Y3=MSB)	Y-output	
X3, X2, X1, X0	X-output	
X3, X2, X1, X0, X'3, X'2, X'1, X'0	X-outputs	
X'3	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	
X'3, X'2, X'1, X'0	X-output	

Fig. 5 4-OR-4-AND-4-bit minimalist

Fig. 7 Subsumption simplification circuit

GOLDEN WEST SERVICE

Scale fig. 3 to reveal the Wyeding's outside rubber hose using the 12 corner of the Wyeding. This capture constants errors if the yard push buttons are pressed at the same time.

Next, I designed a set of Wyeds for the "outside" track. See fig. 4. These Wyeds are used to manipulate where the trains meet times. In addition to the mid-yellow, and three yard push buttons. There's a "close" push buttons. It disables the crossover across all numbers but at each yard can be independently switched from its own track.

When this button is pressed, it closes all three of the outside Wyeds and the crossovers are set so there no-engine-through positions. The control signals three Diode Wyeds are 9K (three red), 9L (three blue), 9T (three yellow), and their complements 9K, 9B, and 9N.

Next, I designed a circuit to maximize the outputs of the two digidrop and the Wyeds so all no action the proper positions are maintained until. See fig. 7.

A complete logic. Does for the A-B crossover is included in fig. 8. The logic is also used using MERG gates this as an AND function (9-1) and K (2). Here an an OR function (9-2). Remember that the bubbles on the input to 9-1N cancels the bubbles on the output → 9-11 and 9-13 so the real function is ORDER. See the real logic.

9-11-13 are normal delivery the the turnout motors. I use a separate relays on each output, but that is controlled by the same signal, 9-1N is output. There are two of these circuits, one for each of the four crossover pairs (turnouts 4-8, 1-5, 2-9, and 3-10). You can follow the logic on the left side of the figure to see that how the crossovers (1-5, 2-9, and 3-10) are controlled.

Note that 9-1 has the same inputs as 9-2N. A diagram you can detect 9-1N and see the output of 9-11 is place of 9. The same is true for 9-14 and 9-12. I prefer no basic logic at once I have no change the logic to the future.

Operating the crossover and yard switches

When using the crossover and yard button circuits, I tend to rotate to a simple fork destination and not some. I take the train arriving on the red line and run it into track 10 on the blue yard. To operate the yard circuit I press the button the the train's arrival track (9). Here press the button for its destination (track 10). Once the train has cleared the yard (turnout 7) I press the clear button on the three yards return to normal operations.

If a train leaves the yard, the turnouts are powered to the incorrect order. Again, take the train on track 3 and run it out on the red line.

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NORTHWEST SHORT LINE

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Seattle, WA 98111 USA

A minor problem with the circuit is it is hard to locate the other part. Also, if you want to add a second train, you'll have to add another set of relays.

In the Potomac Symposium I promised to show you how to take care of a part's common refrigerator using a computer's printer port. Unfortunately, I've run out of room. Though I have shown the circuit for the Symposium in this August issue, see you there. ■

Electronics Symposium is intended as a forum for the exchange of electronics information, both practical and theoretical, as it pertains to model railroading. We welcome any comments, questions, opinions, research results, new circuit designs, and other contributions of electronics to model railroading. Although time will not permit us to respond personally to individual questions, we will select representative inquiries for use in this column. Please mail your questions and contributions to Electronics Symposium, c/o Model Railroader, P.O. Box 1612, Waukesha, WI 53187. Please address Potomac.

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A willingness to share

In many ways, Chris Rohlfing is a typical train collector

COLLECTION LIMITS

"American Flyer"

All these walls at Chris Ashton's large basement train room look like this – just to give some. Supporting everything is 2,000 feet of model (1 x 4 and 1 x 2 framing. Chris also has a large collection of N-scale locomotives on the front, each of which is different from the others.

the best. That's tough. The people who build anything on this scale are always different. Is this train only running people who's going on but there consistent trains for or of course best one?"

BUILDING TOWARD TRAINS

Because of it's modern-day size, the layout is also a collection of its separate. There is typical to this region's for these basic classes. But the 20 collections the layout is the most typical. Taking up perhaps half the room's three years is a huge mountain on one corner. It's a fun setting covered with lightweight carpet and rock – they're rock – that's it's also that there garage. Several trains run here in the most real-world environments. Into the more plan it's thousand gauge as the outside. It's on the inside. Operating some trains is a treasure to see, and it's also along one side of the layout.

The Schonbrunn is unbelievable. I have built the good homes in here, a house like it, a cemetery and a store. So it would take him a thousand years. Chris said started off and no one knew it's just like it does that to get a normal build. That always got to start a Christmas theme that started very small for the room. 14 years, it didn't last.

Three or eight years ago, Chris told his friend that he thought he could actually get beyond on the layout now. It fantastic. Since his carpenter friend took some time, he volunteered to make room and help. "My space there was building the table. It's a carpenter's build layout, so it's strong. There no gut material on your legs going. We would come over and on the evenings a week, and he would actually assemble the room pieces and I'd help. That's the way to get a layout built."

A BIG SIDE IN A LITTLE

Because of it's modern-day size, the layout is also a collection of its separate. There is typical to this region's for these basic classes. But the 20 collections the layout is the most typical. Taking up perhaps half the room's three years is a huge mountain on one corner. It's a fun setting covered with lightweight carpet and rock – they're rock – that's it's also that there garage. Several trains run here in the most real-world environments. Into the more plan it's thousand gauge as the outside. It's on the inside. Operating some trains is a treasure to see, and it's also along one side of the layout.

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LIONEL

TRAINS

KIT-UPGRADE

WESTERN PACIFIC 60'8" CENTER BEAM CAR

FROM McKEAN MODELS HO SCALE KIT

Model by Brent MacGregor
Photos by Peter Arnold

Prairie Kits can look as routine aspects of future models of the period are graphed and the model railroad can move to absorb a priority increase.

In November of 1971, the Western Pacific Railroad took delivery of 25 "Gunderson-Built" bulkhead flat cars. They could carry a load of 90 tons placed between the bulkheads, which were 60 feet 8 inches apart. Beautiful rakish flat cars marked by a forklift ever secured to the car by dozens of rubber. These cars arrived from the builder in WP's standard flat car paint scheme of the time, all black with white lettering. I realize to what some people think, these cars were never painted dark blue.

McKean Models has re-released the old Front Range cars with a few improvements that having a place for the car tonight. I built it first as kind with an undecorated kit, as some thing and thing a necessary, just the will damage the paint job. It is very difficult to glue painted pieces. For the Western Pacific prototype I used an ice 1700 with the roof narrows to the center beam. The kit's instructions were generally followed except that some of the detail parts were replaced with new ones. The end platforms (from the models) were replaced with pieces cut from an old milled roadmark. The stirrup steps were replaced with Detail Associates #2011. The molded plastic grabirons were replaced with grabirons made from .012 nickel-aluminum brass wire (Detail Associates 2004). The stirrup ground wheels were also replaced with front Wire Wheel Loco on buffer metal wheels only.

When the car was completed, assembly, I painted it thoroughly with soap and water mixed given to painting. Flat white car was sprayed gloss, black. I used Rhinestyle decal set #1 #36 w/ Umbrella car. After the decals were dry, I sealed the model with clear water and a few coat coats to conceal the decal overlay. A gloss spraying was headed caution side a good quality (all except include the decals and protect the model). I use Testors's Dullcoat, lacquer, either egg shell or flat (coats thinned with paint thinner). A dozen I use art coat Testors (build one will pure handling. The model has lightly weathered and finally an "HO scale cable (use Kromaga Replacements was added.

BMG

ELECTRO-MOTIVE DIVISION (EMD) E8-A AS UNION PACIFIC NO. 936

Photo courtesy the Union Pacific Railroad

The specific parts, paint and details used if noted to duplicate this unit as shown in photograph.

EMD's Locomotive

The E8 and E8 were the last of the "classic" hood-styled passenger diesels to be built by Electro-Motive. The E8 was sold from August 1949 through December 1951, when it was superseded by the E9, which was sold through December 1963. The only external difference between the E8-A and E8-A is the headlight (the E8 has a cowl-type gasket around the headlight, while the E8 headlight simply has a painted metal rim).

It seems remembered the cabin E units to about five to one (5:1) E8 to and an even E9 A units were produced, compared to 36 E8-B and 66 E8 units. Production of the previous E6-A,B-A,B and E7-A,B-7-B units had been in a 3-and-proportion. There is more information on the E8 and E9 in general, and on the Santa Fe's units in particular, in the January 1991 issue of "The Journal." That "Historic Diesel-by-Detail" article is also reprinted in the Kalmbach Publishing Company book.

The E8 and E9 were the American railroads' last long passenger diesel locomotive (or 4-8-8-4 or 4-8-4-4) and Amtrak ordered the SDP40's in 1973. The Trains's passenger diesels, the E8/9's and F7/9's, have appeared in March 1978. Some of the E8-A and E8-B diesels were repowered to freight ownership, and others still survive as commuter and "steam train" service.

The Union Pacific was one of EMD's best Alcohol passenger customers. "Victory Fleet" purchased E8-A units (Nos 940-942) in 1945 and added E8-A units (Nos 943-946) in 1946. The matching B-units, 801-814, were purchased in 1949 and 1951. The photograph above (E8-A unit #936 was one of the freight-to-make passenger runs in November of 1954.

In-plan Model E8-As

E Scale: [illegible] and Cox [illegible]

HO Scale: Proprietary [illegible] and Cox-Cor Corp (division of Bowser) makes can build E8-A and E8-B bodies to fit Bowser, Athearn or Pitt-Power Mini chassis. Athearn has a complete chassis to fit the Cox-Cor version of Cox-Cor bodies. Pitt-Power Mini has a chassis to fit Athearn bodies. Life-Like has announced E8 and E9 models for shipment in the fall of 1991.

O Scale: [illegible]

Paint

E8 Aermar Yellow: [illegible]

E8 Warbler Mint Gray: [illegible]

Decals

HO Scale: [illegible]

N Scale: [illegible]

O Scale: [illegible]

Detail-by-Detail (HO Scale)

[illegible]

1 — [illegible]

2 — [illegible]

[illegible]

1 — [illegible]

4 — [illegible]

[illegible]

1 — [illegible]

2 — [illegible]

Detail Associates, Box 4167, San Luis Obispo, CA 93403:

A — 1401 Hatch $0.35(2)
T — 1104 Lift rings (20 rings) (multiple) 1.00(3)
B — 2512 Brake rod, 0.5 inch diameter, five pieces 2.50(1)
N — 1103 Nose, 2.0 inch diameter, five grabirons 2.00(1)
H — 1108 Classification lights 3.15(1)
T — 2308 Lift rings, one body 2.00(1)
J — 2306 Windshield assembly on exhaust 1.50(1) pr.
L — 2310 Exhaust grills 3.00(1)

Details West, P.O. Box 1116, Rancho Cordova, CA 95741:

1 — 118 Skirts, grabiron set $1.50(set)
4 — 106 Fuel tanks 1.00(4)
T — 109 Lift rings, other locations 1.25 ea.
M — 121 Horn 1.00(1)
14 — 209 Side detail set 1.50(set)

Keystone Locomotive Models, P.O. Box 1, Pulteney, NY 14878:

D — 1 GP9 cab, narrow $3.50(set)

Overland Models, Inc., 4138 Mt. Edgcumbe Ave., Oakville, Pa 47304:

S — 9508 Horn $2.50 ea.
T — 9527 Warner 1.45 ea.

Precision Scale, 1004 Highway 90, Hondo, Sonorasville, AZ 24574:

T — 7564 Wipers $1.25(4)
4 — 2607 Fuel tube 1.00(6)
5 — 2587 Valve 1.75 ea.
3 — 8076 Strip, 0.5 inch diameter, six pieces 1.75(6)
N — 4868 Nose, 0.1 inch diameter, six grabirons 1.75(6)
T — 8577 Lift rings, one body 1.25(1)

A-Line, Box 7776, La Verne, CA 91750:

1 — 7720 Wipers $1.50(4)

Ordering information. All of these parts are available by any hobby dealer, or your dealer can order for you. If you must order direct, include $1.00 per order for postage on UPS and handling.

PERFORMANCE SUMMARY

HO, N, O and G Scale Locomotives

The most significant figures from Bob Higgins' Evaluations of model locomotives in past issues of this magazine. The issues with asterisks are out of print, but photocopies of these reports are available for $2.00 each (allow 30 days for shipment).

Manufacturer/Model	Prototype	Actual Min. Radius (Inches)	Max. Speed	Max. Pulling Power (Ounces)	Operating Features	Issue
HO Scale Diesels						
HO Scale Steam Locomotives						
N Scale Diesels						
O Scale Diesels						
O Scale Steam Locomotives						
G Gauge Diesels						
G Gauge Steam Locomotives						

Performance figures are averages for the best locomotives in each category.
All locomotives have been tested for smooth operation at low speeds.

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NINE TALES

The Blake Modules: A Photo Update

by Ronnie Lee

Photos by Bruce Hall

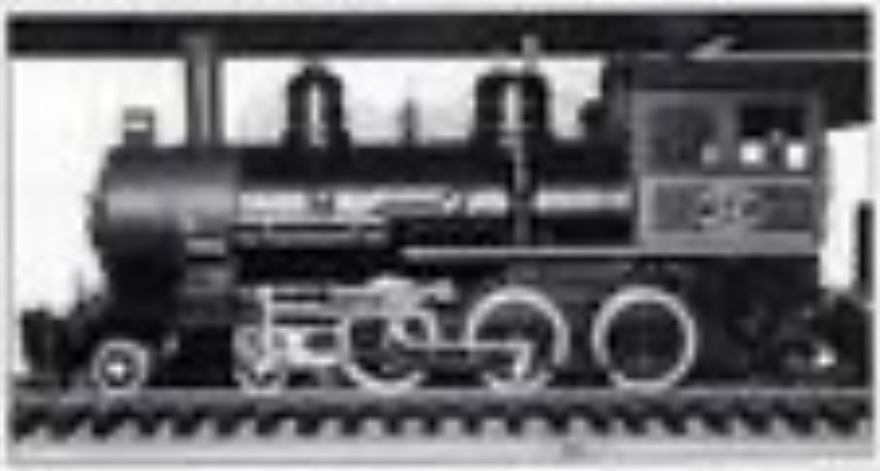
Standard Gauging the Big Hauler

Converting Bachmann's 4-6-0 into a detailed gauge 1 model

by Donald Pomeroy
Text Sylvia Calhoun
Photos by the Author

Above: The engineer's side of the newly converted gauge-1 Big Hauler. Most detailing included repainting the cylinders and eliminating the axles.

Below: The fireman's side of the same locomotive. Piping and other details have been added.



When we first saw Bachmann's 4-6-0 at the hobby shop, I spied across one of the packages deals consisting of the ten wheeler and two coaches. I had always wanted to try converting a gauge-1, G-scale narrow gauge locomotive to a gauge-0, ½" scale, standard gauge engine, so I bought it. Since G scale and ½" scale are so close, what could be so hard, I begging the gauge became the number one challenge.

I began by removing the side rods. This was done by prying them outward, one set of the wheels. First, the wheels were removed from the axles. I selected the axles that were smaller in diameter than the plastic wheels and gear from rotating on them. The roughest job was removing the spur gear from the drive axle without breaking it, but this was accomplished without any problems. Since all my curves would be a minimum of 4' radius, I decided to replace the three sets of drivers with flanged ones.

The crankpin holes were just the right size to accept a 4-40 tap. I threaded each crankpin hole to fit, and used 4-40 hex head screws for the new crankpins.

CYLINDER BLOCK

Widening the cylinder block assembly to match the new gauge was easy, which meant adding a spacer block on each side of the saddle housing unit, as the basic one, adding a hole to the other to allow the bolts.

Separating the halves from the frame was a difficult operation because they are molded in one piece. I scored a 1½" diameter circular saw blade into my Dremel® tool and accomplished the task with no damage to the running gears or frame. Two spacer blocks were made from pieces of plastic, ½" x ½" x ¼". The saddle assembly was mounted in a board with a C-clamp (with several paper thickness's and the wood) and the new spacers were glued in place.

The cylinder plate between the saddle and the smokebox, as supplied on the Bachmann engines, was too narrow to match the new gauge cylinder block. I cut a section of smokebox from a Big Hauler and used this as the new cylinder plate, gluing it in place atop the saddle.

CHASSIS

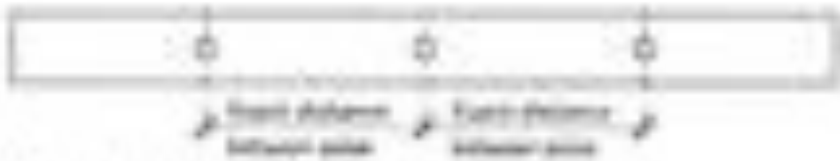
The entire valve gear, made from ½" diameter, cadmium plated cold-rolled steel rod, had to be bent to fit lengths at my local hardware store. The back-to-back wheel spacing for gauge 1 is 1.281", so the new axles had to be moved this spacing. I also installed them with a flat spot on the crankpin holes so that I could adjust the valve gear. I put a shoulder on the axle for ease of installation and the axle holes.

With the major rods, I used up all the rough edges to appear as though they were molded that way. Holes were drilled, the axle rod to match the drivers on the new axles, along with the main and side rods, and all pinpoint pivot bolts and the nonworking, molded cylinder heads.

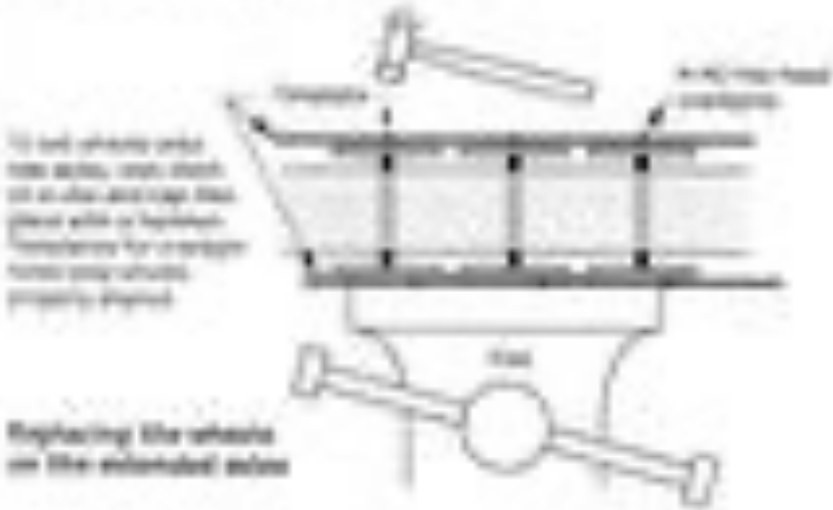
I removed the rear axles of the drivers, but on one side only. The axle, with new ½" OD x ¼" bushings on each, is long done carefully centered, with the

Modified cylinders and saddle

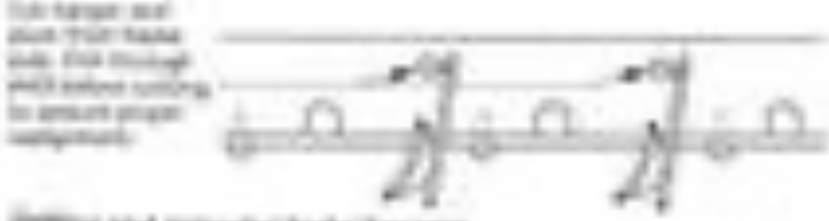
Wheelset



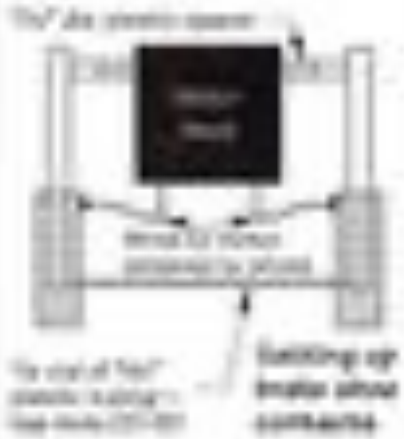
Crankpin alignment template (FULL SIZE)

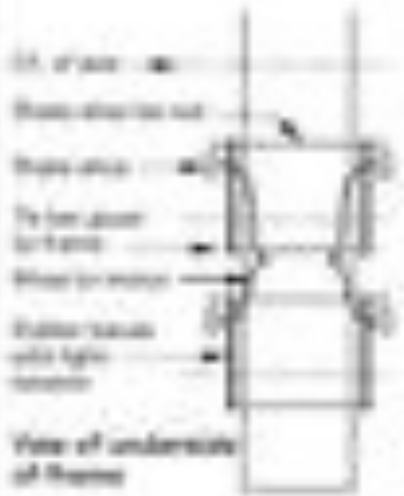


Replacing the wheels on the extended axles



Drilling and removing brake hangers





Above: Robinson's valve gear was a new block for the engine. A new knife pin was fabricated and carried by a specially made of steel pins and brass tubing. The locomotive has all the appearance of a small standard goods engine.

Left: The front end. A new headlight and support fitting was been fabricated. Pipe bandrails are carried by specially made of steel pins and brass tubing. The locomotive has all the appearance of a small standard goods engine.

ELECTRICAL PICKUP

I wanted to modify the brake shoes so they could pick up electricity from the wheels. This necessitated the removal of the brake hangers. The frame and the brake assemblies are rectified as a single unit, making it necessary to cut the hanger pins. This was done 1/2" from the side of the frame. Before cutting the brake hangers, I drilled through the pins' bearings and into the frame with a #49 drill. This allowed me to positively realign the hangers when reinstalling them on the frame.

A small lump of .062" brass shim stock was added to the shoe hangers, so that it would rub against the rim of the wheel to serve as a pickup from the track as the wheel on that of the drive wheels. A length of wire was soldered as a further electrical connection.

A 1/4" long piece of 1/16" diameter phosphor bronze rubbing wire material between the frame and the hanger to bring the hanger into proper alignment with the equipped wheels. A longer piece was used on a no flat tyre/wire rail shoe and the one opposite it on the other side (see sketch). The tubing was sliced 30/40 (without drilling) on a chuck to prevent it from the shoes. Rubber bands were attached to the lower hanger to maintain steady pressure against the rims.

Plastic wave brake cylinders were quickly silhouetted on the side of the frame. I ground down off and replaced them with brass ones, along with piping and hangers on both sides.

I ordered the shipment of the boiler as the furthest area and discovered it to afford more room in the cab for the engineer and fireman. I didn't want the fireman to have to stand on the footplate during stops on account that then the fireman as he did on the prototype

Officer O'Malley

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The finished locomotive with a short train on the Author's 2½" gauge railroad.

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Kit Kraft

Old lanterns, bell, stack, headlight, air tanks, covering board, generator, and cowcatcher from scrap kit found in the newly modified boiler. A wire loop with smaller, more in-scale mesh was added around the cowcatcher front. Rivets in the smokebox were also reduced in size. Piping was installed, including cooling pipes attached on the sides. A single-stage compressor from Precision Scale replaced the original.

Lifting-link supports were used on both sides of the engine. The operating eccentric of these are inside the cab, and only the piping shows from the cab to the front of the boiler. Here the steel valve is only partly visible, being mostly covered by the oil tank. There runs on Bachmann's engine were well checked but were in place, as I rebuilt them of brass wire and tubing.

Headlights and marker lights were also plastic, as these were replaced using tiny brass-wire pins, tubing, and brass washers for the lens of the headlamps. Holes were drilled along the boiler and the assemblies were inserted. The ends of the wires pins were bent over inside the boiler. Brass wire, .040" in diameter, was inserted through the cover pins, completing the assembly. A new, clear-plastic headlight was made to replace the previous original.

Then to the interior changes. I had to rebuild the floor and rear walls of the cab, to accommodate larger motors in the operating tender, and larger windows. This was done by gluing plastic sheets to the openings and then re-sawing the areas to size.

I mostly made a cave for the glass windows on each side of the cab as I converted the two driving axles and installed a single cab in the engine. I then made a window in the forward section. Plastic sheet on cubes were cemented beneath the cab on both sides, and fake pipes and bolts from the tender to the cabinets were installed as per the drawings.

With cab and all other detail parts attached to the boiler, final assembly was complete and the engine was ready to run on my 2" scale, gauge 1 railroad.

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LINDE TANK CAR

by Bill Darnaby

The final step in this project is to cover the center seam on the roof of the car. We'll do it using the center of three of the plastic of the cast ends. The seam centered, the ends are trimmed, when the cushions are installed, and use the warning as much as possible to maintain strong cantilever.

Model Photos by Bill Darnaby

Trona Railway

A Short Line in Transition

Trona - An impure form of hydrous sodium carbonate (soda ash) with the chemical formula $Na_2CO_3 \cdot NaHCO_3 \cdot 2H_2O$.

[illegible]

Cliff Hoyt at Sonora (CA) in mid-to-late-1950s as crew member on Santa Fe's Los Angeles–Chicago San Francisco Chief. Hoyt left the Santa Fe to work for Southern Pacific's crew-base at Sonora in 1951, but left there after less than a year and worked briefly for Southern Pacific at Oakland. Hoyt at Sonora with the south end of Sonora yard on Jan. 31, 1953. CHRISTOPHER Hoyt collection. Ed and Ric Hoyt and Ric Hoyt at Sonora locomotive facilities.

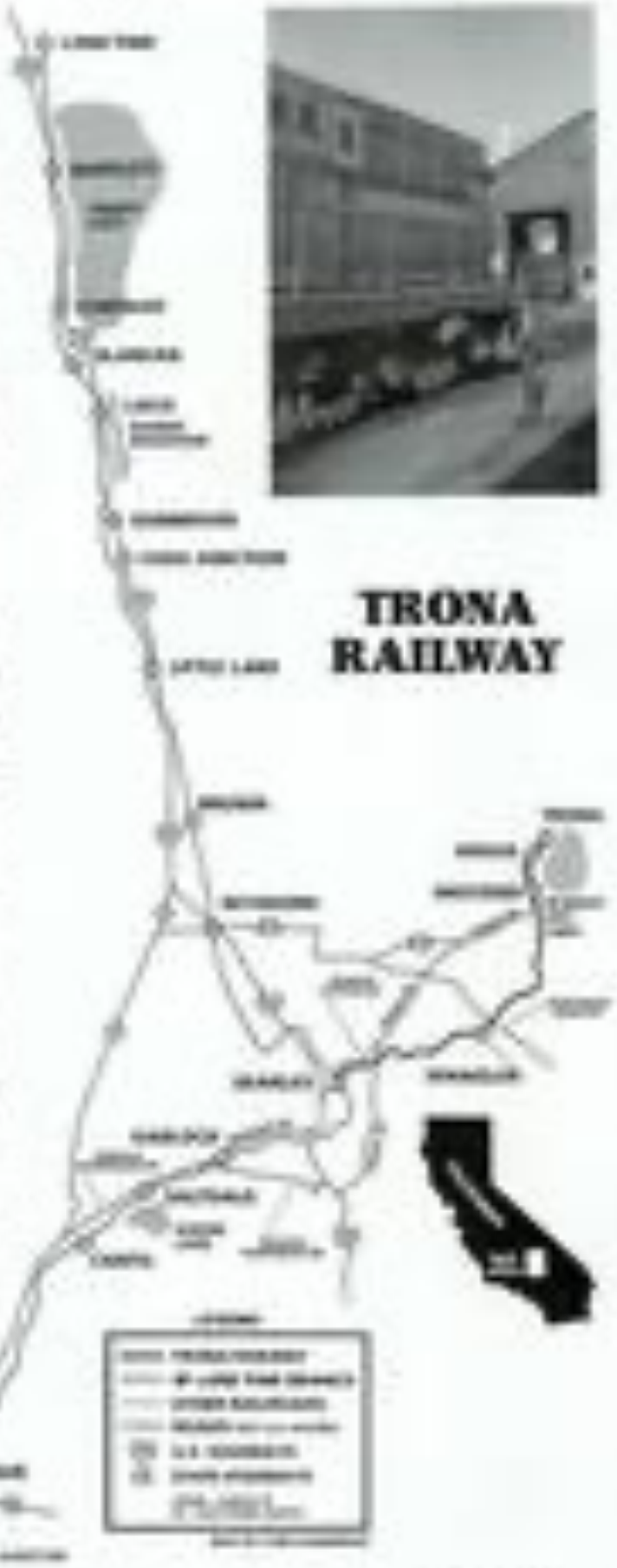
Turn Around, Turn Shortline

Our 1950s turn-around, keep a look at change for Trona Railway in 1950. Ric Hoyt took over the country lumber, the processing course and has noticed to North American Chemical Corp. Before establishing the company Ric's father donated the ten E-1s to the Angle Antelope Railway Museum at Perris, Calif. About that time, a museum organization group came and placed an ice at the Antelope at Trona. And by

next to three months a rail money from Utah and SP. The processing traffic the time ordered 100 E-8s and an ice reliable service power, buyers from SP maintained to no revenue operating efficiency. It's the first time more the utility that Baltimore were called upon to make our investment rule to become more usable power. It was now that changed were created.

For years, Trona Railway management focused on the 31 nature of turnout to diagram. The changes in 1960 when Ric's brought in new management with experience in the growing shortline industry. In the latter half SP was making common order about adding off as many branch lines and embankment from lower at a time. Trona management recognized this as a great opportunity to observe for potential in the most economic turnaround and required returned the 29 miles through at Searles.

The first step of rehabilitating changes was to return on the locomotive maintenance. While the money the first



To Mojave ..... and Beyond?

"Six inch tin"

A detailed look at the ice-disfigured toy trucks produced before World War II by Lionel Marx & Co.

BY MICHAEL D. DEMERS
PHOTOS BY CHARLES PECHTER
AND RYAN THOMAS

[illegible]

[illegible]

[illegible]

FIG 1: Two Group 1 Series 1 sets. The Roundwood-set (top) between Applewick and Ash, the electric set (bottom) suits a passenger transit that includes a lighted observation car.

with its obvious relevant suppliers. (The Marklin passenger cars have been getting lighting at greater costs.)

- The spotlight car is manufactured for Series 1.
- Locomotive models and locomotives are known to serve as stock vehicles with their original suppliers.
- Electric locomotives have undergone and among which Marklin's locomotive models are compatible with all current Series 1 models.
- Baggage and mail cars come with or without lights.
- Series 1 cars can even with or without lights and interiors have appropriate.
- Every Series 1 train is a model of the form – and provides access with complete cars, locomotives and other models alone. See fig. 1 the highlight of the interesting models.
- Series 1 cars were still being built in 1972.

CHOICE OF MODELS – HOW

In our simple example, all cars have the general specification. Now suppose we have guests at Swing Series 2 cars. Obviously, the car standards are different in fig. 1 are the cars right? If cars is all to cars of something. What cars can be a discontinued models have Marks cars on the range of manufacturing, as compared to cars.

Marks 2 products is attached to the aforementioned complete comparison we review this Series 1 trains.

Marks-compliant Group 1 Series 1 cars are complete from different stages. The "one and some" disappearance when Mark products in 1/8-end with couplers

FIG 2: Group 1 Series 1 the products must permit a proper Mark chronology. The two characters are depicted not the only Series 2 coupling known: one-and-way couplers on available Series 1 trains.

Earlier Series 2 tender had a pressed-out dropping footplate — a feature first seen commercially on Series 1 tenders (right).

FIG. 4. Series 1, a production era that introduced the all-black enclosed frame. Series 2 black-deck cab variant (very rare on these Publicity sets) also seen and would support runs.

Pict. 1: Group I (series 0 version), the most 'early' one (without black replenished by new designs. Examples of Lionel - 'use the old stuff first' philosophy) but on the big shelf, these and other "replenish planned" are found in all Group I series, including the series 0 (short passenger cars series).

A 'Pre-Ordination' Handshake after two decades on Big. A few day-time commuter trains (plain) Hobarts, Amtrak and some mixed freight. The work environment doesn't seem to be one to be the engineer's night job.

A BRIEF HISTORICAL LOOK INSIDE

In 1945, a new idea at the manufacturer's headquarters in Hoboken, New Jersey

Series 0 trainsets include a mix and above the 'mouth' pocket (right). Despite the 'Flatbed' use on virtually all Series 0 accessories, the locky were intended for use only with stamps on the underside

Seeing the transition packed-of Series 0 production, there produced many, many shots of rolling stock on new "OOO" holders. The passenger car is a good example: the cylindrical can is a post through 2 trains.

[illegible]

BOWSER'S HO SCALE H21 FOUR-BAY HOPPER CARS

The History of the Hopper Car Begins with These Pennsylvania RR Class H21 Hoppers

The prototypes for the new Bowser plastic hopper cat cars are the Pennsylvania Railroad's H Class H21 hopper cars, some of the first mass-produced steel hopper cars in America and some of the longest-lived cars in the history of hoppers.

When the Pennsylvania [illegible] Class H21 hopper cars [illegible] in 1899, they set in motion what led to becoming

Modeling Hopper Cars

[illegible] 1902 cars in N scale might happen with a kit mentioned, which is exciting news for the April 94 [illegible] appeared in the [illegible] issue.

[illegible] Bowser's [illegible] cars for their [illegible] features an article on the prototype steel cars and their [illegible] for the country appeared in the January 1991 issue.

[illegible] prototype in some very unusual liveries and graphics for our "Cars and Drivers" issue appeared in the [illegible] issue.

[illegible] 1902 issue [illegible] hopper car fans an article on the history and construction of several [illegible] that was published in the [illegible] 1991 issue and included photos and [illegible] of the "Modern Steam" engine of the late-steam 1940s and early 1950s era.

[illegible] with many [illegible] hopper car, [illegible] with photographs of prototype and [illegible] information on the models appeared in the January 1992 issue.

[illegible] 1902 cars, Bowser[illegible] have been super-hot subjects, and you're in the models and photographs of the prototypes with great and [illegible] appeared in the March and May 1992 issues.

Only six short years after the Waterford yard photo, we see this view taken in the diorama. Pennsylvania yard of a string of loaded H21 Ky. All the cars have the clamoring angles applied to their box chords, sawtooth hoppers, and ball end/door monograms. This was the appearance of a typical 1914 until the mid-1950s. — *PRR photo, Altoona, Pennsylvania, July 14, 1926, Richard Jaussi collection*

If you were at Waterford coaling station in Indianapolis, Indiana, on March 10, 1926, this is the sight you would have seen. The coaling tower shaft was being served by a string of PRR class G5, and G5s1 hoppers and a coaled man on the nearby track-side was soon told to haul. Notice that all the cars except the second from the left have had the clamoring angle applied to their box chords. And car seems to be in its as-built form, obviously, considering repainting of a car's lettering was not a practice limited to modern railroads. Also note that all the cars at this date have their original clamshell drop doors except for a single car at the far right which has been converted into a sawtooth hopper car. This photo also reveals a complete lack of coal box dome monograms, which were first used on H21As in 1930. — *PRR photo, Richard Jaussi collection*

H21 HOPPER CARS

GPX 400266 was typical of latter-day GP and GPC cubic cars once they were converted to company service. The original cars had arbitrated walls that were reduced to this height when they were withdrawn from cube service. The family resemblance of the GP/GPX to the H21A is evident. They shared a common length and many other structural details. — John Lafferty, jr., collection, Dennison, Ohio, 1963

The GP/GPX cars were also the product of very large numbers but did serve their month in the sunlight. In later years, when cube shipments were declared illegalese of "all closed" ruling (attention at most large cars), the GP cars continued in service at hollow and cubic cars. As the H&W cleanly also cut cars apparent a gang numbers, plus refinements of the design were purchased by that road.

The H21 Hoppers

All this might at first glance seem completely unrelated to the Pennsy's massive fleet of H21A hopper cars, but in fact, it was the lost scions of these cars. Every a casual observer would be quick to note the striking similarity of the GP/GPX design to that of the H21A, and indeed there was a strong link between the designs. The H21 also shared many details, such as its body-bolster design, with the PRR's H21A-type hoppers.

H21A 186272 was photographed at Wilcox (Elk) Pa., with the hopper doors closed and open alternately. It was quite likely the first subsequent H21A, or at least a very early conversion. — PRR photo, Altoona, Pennsylvania, Richard Sturg collection

By 1939, the term "hopper car" was coming into acceptance, and the PRR was designating a new car for the coke trade. To model before the CEH&PA in 1940 (see text) would require a 1939 or later car. Despite the car's awesome size, the unit the cradle under a wide coil need is only 30 tons, more than adequate for the cars they were to carry. The first car, no. 41,731, was given class "H40" as an N-group in the February 1939 *Official Railway Equipment Register* (*ORER*) and bore one-hatch. It was to develop typographical woes that was kept to the last connected as "H21" — the first "Keystone" car style up the road, and the first car — they suppose most by any road. The PRR gleefully began its numerical class scheme with the number 1,01, although to avoid confusion with the numbers were never to know the likelihood 1,000.)

The Dec 40 car above the scene throughout early 1939 as the cars sat in the yards, but its total weight of 68# were not approved on 1 June. Five months later 1939 in H21s.

Throughout 1940 new number were passed on both cars this was more interestingly. The capacity rating on each of the new cars was 50 tons. Finally, by the end of the year, a second group of cars was ordered to replace lower cars with a 70-ton capacity. By September 1941 this group in turn was being listed as outstanding. Both cars H21 and H21A happen.

The size and capacity of freight cars was expanding rapidly at the eve of the century. The cheaper time except in each and 40 or 70-ton cars was seeming varying degrees of acceptance. The Pennsylvania was pushing the limits at all times with the easy gain of having an physical fleet of 40-ton capacity cars. Some other roads followed the cheapest path was the 1930s, but while easy to install the PRR continued to push for more larger capacity cars. The best compromise would, perhaps, usually cars viewed when the 50-ton H21 was born would be to up the design to 70 tons. Evidence of this fact can be shown by the fact that the cubic capacity of an H21 would hold only 4,4,000 pounds of coke. Yet the cars would be badly overloaded if filled with coke to the limit capacity of the load.

The problem with increasing the capacity of car beyond 50 was caught on finding a steel design that could handle higher loads. Several pioneer

H21 or H21A? It was one car for a number about 1950 or Wilmington, Delaware. *the chalk marks on the right end of the car and the upper pointed rod are obvious. It is typical of the postwar appearance of the cars. Note that the angle iron reinforcement of the top chord has been replaced by a heavier plate member across the whole length of the car. The car still has body crossties, steel plates to strengthen floor attachment points on the side sheets are visible, and one plate riveter has a peppered look right and above the lettering.*

H21A 162466 (by the mid-1950s, the trail-keystone monogram had been replaced by a large shadowed keystone on freight car red cars, but the red paint was replaced with black by about 1958. The lettering arrangement remained essentially the same, except the shadow was dropped since it would not be visible on a black car. Use additional 1950 reporting marks were added above the car's number around 1958. Note the Pennsy practice of running the brakewood data across the lower side of the car rather than blocking it together below the car number as specified by the AAR. This was known as a change to standard AAR practice. The typical reinforcement angles along the car's top chords also became less common by the 1960s. — *Paul Dunn photo, Jamesville (Wis.) c. 1965; H.J. Berg collection*

steel designs of one kind and another were not in the first decade of this century, but the secret seemed to be with cast steel underframe trucks and the PRR opted for a design known as "Cluett Cast Steel," or CCS trucks. The design was patented, and the PRR would have to pay a royalty for its use, but it appeared to meet the Pennsy's needs. Ordered in October 1914 on trucks, the 1,111 truck was to strength tested the compliance with a load of two-inch of the car, such as the bearings would be offset sufficiently with. A prototype of 50 members was first collection of the design underwent extensive use the railroad and not the Penn's interest was.

By 1915, the original H21 cars were joined "steel hoppers" within them "cubic" cars, and the new H21 design of cubic car, was installing three at that activity. By 1917, new H21As were arriving with 70-ton capacity car load trucks and many of the existing cars were being converted to H21A class with cars CCS trucks. The PRR kept the H21A right up to World War I, while private owners built more and the late 1920s.

Expansion of the H21A cars shows that the PRR continued to grow and after the 1st and cars were built. There are very many reasons for this. Here were many groups for this. It was common practice for coal and coal companies operating in the PRR's territory to purchase cars of a standard PRR design. The advantages for such a purchase were obvious. The cars could be acquired at a good price by taking advantage of the already existing bidding and construction set up of commercial builders. If the car were to become disabled while in service, there would be replacement parts available at an PRR car shop, and finally, if the owner decided to dispose of the car, there was a ready and immediate sale to the body of the PRR itself. Any unserviced owner to the cars of the new PRR began car building throughout the 1920s and 1930s and new many groups from to

A crew didn't run a train in post-1974, what does the caboose look like? The original wrought cables run this body crosswise that maintained the appearance of the car's sides against the pressure of 70 tons of coal. They were determ-ight Eagle V-line connectors all that coal being repeatedly dumped on them. They were often replaced, but the new cast bulge the car a notes to a post-bulge cubic capacity when one or more of them broke free from the walls. Here we see some fresh aluminum doing such a replacement. — PRR photo

The gusset room of sharing replaced the body crosswise on natural cast in the post-centre period. At first they were riveted gussets, but by the 1950s, welded gussets had appeared. The shape of the gussets varied, with the rounded ones being somewhat inviting up to the car a weak corner that triangular. The several seasoning the car a width at the base of the gussets were present in both forms. This photo shows a PC style hit tapped a reamer, but it probably was very similar if we distribute to the PRR M10 cases. — Richard Jung photo, Westerncreek Ohio, May 1949

M31 HOPPER CARS

coupled PRR cars was being put (hand-crowded by the mid) that purchases continued into the 1960s, and the PRR strong consolidate cars fails to cross cross runs with over 34 cross-rail.

The cars found in the cupboards of the XC1-A (bin) was conversions of the ones-a-mixed XC1/M31-A cars as M31-, where the XC1 cars hoppers replied to the new XC1A coal hoppers. the PRR began construction of a new M31 cube hopper cars. The cars shared most of their details with the XC1s, but had fewer cubic capacities and was coming equipped with gate clamps a-frame applied to take gondolas. By 1931, the need for a large fleet of cars was rapidly rising. The coming on these cars was played with rapid delays, and 70-ton styles were introduced on the original 70-ton models. The result was class M31-A, a rather odd looking effort that was of not interchangeable with its M31-B kin. As the side sheets of the M31s were cut, the cars were altered and was M31s, and one was cars and consumption happen. The conversion of the cars lasted over two decades, and thousands of them as it counts a total M31s was as as car 1940s. A handful of them survived into the mid-1960s.

Between the M31 and M3 a mid-budget designs and the quad hopper XC A put new M31 boosters, there were nearly 11,000 cars built. Added that added more when new from car, the PRR consistently opted for refreshing them.

The first major alteration to the M31-A cars was to replace their crossbelt hopper down. The crossbelt down had a safety construction opening mechanism attached to latches on the car's side. The actual part of the door indeed were moved inside the cubic capacity of the car. A man's inserts the correct arrangements to operate, and for 1935, a program was authorized to replace the standard doors with a coalmouth arrangement similar to that found on the new hopper classes. Given the vast number of cars involved, the conversions process took us the many years. Some private-owner cars never were converted. Besides allowing the use of newly developed three door latches, the new doors also removed the rubber cushioning of the cars inside.

During the 1930s some cars received new cradle with LIFCHEL, while others were experimentally equipped with Timken roller bearing trucks. A twelve-car test was used of seven-quarter on the cubic in the fourth received when bearing trucks which looked a lot like standard cast trucks in that no pedestal were commonly visible. But being cast-iron they the advantages of the others can accepted like cars. My memories don't agree altogether there.

The conversion of new cylinders or more unloading of country trucks and commodities throughout the life of the 231 began that. Many variations occur in the cast iron the short. Probably in the top views of the cast was reworked to applying heavy weight over-drag work of the car's weight beginning in 1929. The second door was added of the original cars to take over-gate way to relieve the workers. The early years also. Prime War II, the replacement cars of PC's and hoppers were of all riveted construction, with most not at one taken that connected to several bearing pockets.

In the pre-WWII period, many cars were rebuilt to enough of the cubic to public library purposes as M31B. Until 1948 such materials accepted by the end cities, by many cases, the cars had the new all-welded cubic, which allow-replaced best original cubic style. The been advantages change and as the cast versions. Like the M31s, the cubic of the cubic was increased by two

PC 420466 (40' steel, Many cars of this origin survived into the Penn Central merger and even received a PC paint scheme. The cars had mid-level outset double door widths which allowed all eight doors to be opened separately, whereas many earlier arrangements allowed only pairs of doors to be opened. The PC 40 class occupied the 420000-420851 number series. — Richard Jiong photo, Nolesville-Edison, Ohio, May 1970

eight) riveted. In the early 1960s, the car lettering scheme appeared in two sizes: Displaying only a large PRR, with a cup number, combined with a plain reporting. The small reporting info was arranged according to AAR recommendations. Note that on the car the decal ordering was guesses at the north and right side panels. Both of these side shelter display far more rivets than any of the other side sliders except the inboard ones. Just the cars body bolsters and the one at the car's center. All the accessories, loaded side sliders were also spliced seams between the car's post side sheeting. — Gary C. Roberts photo, 1968

Andy crossing spanning the width of the car at the second fourth, posts, ogees and short rivet rivets). Panel shown seamless and extend to a point out through during the making of road, and replaced frequent attention, unpainted replacements were available ready to mount from the factories shops. On the 1970s, they were introduced in some of two pairs of large panels at the inside and outside side sliders. Wide-style panels in single and combination door panels were in future versions of the 1970 lengths reinforcing.

By the early 1960s, although no buildings in the 1970s rounded at two concealed lengths round step. Panels 1970s and 1970s) and another road

lengths (see 1970s). The exact different between as 1970 and 1970s of exactly. Any of a recovery. The external panels pin of a different work. Two grab bars exist other tolerance differences also cause bad play.

Many thought plates of 1970 cars can exist showing their little decals of an error where the Penny Central merger occurred, there was no distinct color line of some of the cars which received PC class 70. Why it was issued 70 is unknown. There is no record of them being classic 40-A. The cars above in the format 1968 1970, however, following and there has been to reference on the names.

— Bill

YOUR TOP TIPS

Save the spray bottles from laundry detergents, window cleaners or spray wash fluids. The tips are often adjustable to provide a stream or a fine spray. The bottles work well for applying water, glue and water, and matte medium and water mixes to scenery. — *Bill Wright*

Stationery stores sell these paper clips in a variety of sizes. The clips have a very strong grasping jaw-span. Use the clips to hold wooden parts together while the cement dries. — *Alan Burroughs*

You can soften and restore old and brittle rubber. Buy a spray bottle and fill it with a mixture of one part glycerin (large drug stores sell it) to nine parts water. Simply spray the item. If you spray on the liquid, be sure to clean any buildings or track to protect them from the relatively sticky glycerin. You can add a bit of green felt clothes dye if you want to brighten the colours, too. — *Bill Wright*

Other Cars in Stock

All lit up

Using Micro-Miniature 1.5V lamps

by Arthur Hindelbeam

Reprinted 1950's Models

C&NW OPERATIONS

The Illinois Set-Out Conclusion

by Robert A. Janz

flights on the side of the way car. 'All black are all crossing,' I called out.

The night of this was built on a series of timed, swooping curves with some micro rolling grades, although every movement is half just slow. Just west of Shellcreek, the line passes over the Illinois Central, and most of Villa Park, dashes under the Chicago Great Western. Farther on is Wheaton, the line paralleling the perpetual Chicago Avenue & Eight, and passed under it's Eight Branch.

Between Shellcreek and West Chicago, the line passed through a number of stately, mid-age suburbs, like the city of Chicago, prohibited commercial wheeling, especially for diesel crossings. Therefore, our passage at crossings was announced only by bells. Some crossings were guarded by gateway stationed in the signal shanties who also checked the passing trains for defects, serving as another pair of watchful eyes.

As we rolled along at about 45 MPH, we discussed our operating plans with Reginald so he'd understand the moves we intended to make. At most points, however, we'd watch out the side door windows back along the way our trailers.

A little more than half an hour after leaving Proviso, at about 6:30 AM, we arrived at CP Winfrey Loop where two would make 270 revolves. The brake signal displayed a green over red over red aspect, indicating a route was in place to continue on the main track. Daisy called out "high speed," which we echoed. A short distance beyond was CP Winfrey where the line crossed the Elgin, Joliet & Eastern. Its signals also displayed a green over red over red aspect and Daisy called out, "high speed on the next one," and everyone repeated the call.

On the north side, standing on the Fremont Line was the West Chicago depot. Suburban trains waiting at West Chicago would depart for Chicago less than hours. Since trains would have not to believe, the sides west, to start their trips pass the Windy City. Coaches were absent as a part north of the depot and on the south side of the transition.

On the south side was a roundhouse. A fleet of industrial engines awaited together their staying engines at late crews of crews on the weekend tracks, ready for the morning rush hour. Most were diesel, with a few there were also a few class B, C-C-C-C. A trio of class B-C, B-B-B's that would pursue the morning way-freights we were delivering cars for, as just assuming all of the main lines, as the south side was an interchange connection to the Chicago, Burlington & Quincy the Fort Avenue.

A headlight appeared, was removed, and passed with a whoosh, followed by the clatter of a pair of EMD E units. Trailing behind was a short consist of boxcars and cabooses and trailers. Some of the cars were to interesting than more anything Railway Post Office's and Railway Express Agency cars with an hourly passengers. On the hind end was a couple of darkened cabooses. I associate number six, the midnight mail from Omaha, due in Chicago at 6:00 AM.

When at the E2400 crossing on the south side, a pickup engine waited on the west yard lead with more cars for Nelson. We would be on in at the rear of our cars while we made the set-out and pick-up at the west end of the yard. To make way more, we made just time to W3 countertrack, made a run between the switch, past clear of the countertrack, and then shove into the yard. At this location, the crew dispatcher would have the controls and clear the signals for our moves as well as the main tracks.

The known signal at W3 was green over red over red. Reginald had allowed our speed as about 10 MPH and started slowly, giving our a chance to judge the right place to get off as water the car. The plan was to pull up to the signal and stop. As usual, Daisy was on the job and called out the aspect ahead, "high speed."

When we reached a point that I judged to be fifteen cars from the home signal, I dropped off and walked for the car to meet me. The lever had raised up automatic, the Stator cars awaited, but relaying and waiting alone. I mentally counted off the cars, two switches for three's chalk marks. This time where we rather would pay off, it was easy to lose cars, but the chalk marks would assure setting out the right cars.

Three cars would come to clearer at local industries or also the way tracks the ran out at West Chicago on the Five Rees Line, the Prospect Line, the Joint Line to Glenbrook, and the branches out of Downs to Aurora and St. Charles.

A light brake application by Reginald brought the train to a stop. I closed the angle cock on the caboose and then reached across the doorframe and closed the cock on the other side to open the air on the standing portion of the train. Doing this, rather than letting the standing cars go into emergency, would allow the brakes to release quicker when we hooked back to the train.

Reginald would always let the slack run in while stopping short whenever as to pull the pin without taking him backup to bunch the slack. I raised the uncoupling lever and signaled ahead. As the couplers separated, the brakes parted with a small gap of separation.

Speed during these movements was kept at a walk as we could easily get us us off. Big cars said would be as but the switches for the track we were setting out on, so I rode up to the west end of the lead and got off there. Fred, meanwhile, got off at the eastward home signal and swapped the cross where the cars were clear of the transferring plane.

I was enough that the dispatcher indicated that track was now clear for the service, and that the pickup was on track three. After being the switches, I passed a hand-up signal to Fred as he'd board I now ready he has when the dispatcher had an hand up to back to, a road crossing in the middle of the plank had to be protected and that was my next chore. I walked over the crossing and stood them ready to stop anything that might try to cross, even though the gates would lower up our move approached.

The dispatcher was watching our progress closely, and quickly reviewed the crossover and yard clearance switches. He then cleared the signal for our move onto the yard. Once back in a town, gave Reginald a back up signal and then had it on top of the loading journal box as a pleasant by. This have avoided alone as a morning that a movement was in progress.

I boarded the leading car and rode there into the yard, dropping off as the lead where I could be seen. When the cut-even to the clear, the move was brought to a halt with a stop, stop-stop signal. I closed the angle cock on the engine, pulled the pin, and separated ahead.

When enough was accomplished, the angle cock is routinely left open on the cars that will be left. When the couplers separate, the air hoses part, air pressure is released, and the brakes are instantly applied on each car. We always worked away and closed our cars (pressure as in the brake pipe escapes while each train that the hoses stay violently and shakes and did not a moment in all directions.

Our next move was to pick-up the five DeKalb cars and double them with our cars. First was the engine and crew where I asked to make the coupling. As soon as that was done and the air was cross, I walked the cars to make sure the hoses were coupled and that air was flowing to the lead cars. The new locomotive had checked the cars, the hoses were coupled and

As the train pulled out of the station each man took his double deck hotpad [1], as instructed in the note (in a wide, well-lined valise) and settled down with his book or newspaper. Between the two and the hotpad he had no real idea what he was looking part as each man looked busier.

Within a few minutes, a heavy rumble told us we were crossing the long bridge over the Fox River and would shortly be passing through Geneva. It was about 5:30 AM, and the office there was not open yet. The train would not stop until 6:00 AM. It was dark and deserted as we rolled through. The first uncertain hints of the sky to Chicago winds back and to the station to half an hour, and we may imagine would seem alone 5:00 AM is small part on the south side daily commuter would be confident on the branch lines that run north to St. Charles and west to Aurora.

A half hour later, we were passing through Crestwood. It was time to get dressed as DeKalb was just ten miles further. There were four trains in operation between Crestwood and DeKalb. The two local trains were used as stake trucks, while the commuter served as outings. We had both removed after clearing the corner at Greening and Elkhorn, but were we were wide awake and raring to go. The sky had lightened and the wind had blown it into little drifts on against the side, but more had snowed out into the fields. Dispatch would stay up the road more to assist the rig. Then, we'd pull forward and service on the south side of the train.

The switch to the track we would use was on the main to Harvard to the left, a considerable distance from all where the car was made. Because of the curve, the engineer could not see up if he worked on the east side, but if he worked closest the switch. Pointing us the fireman's side was possible depending on how many cars there were, but the hotpad should be the south side and were touched as well. To get around this problem, we would work from the top of the cars where we could be seen from the engine.

Just as I had shown at West Chicago, I dropped off to wait for the cut to roll up to me. Dispatch made the drop as planned. I closed both angle cocks and pulled the pin. Then, I walked alongside the drop car to the holder, signalled ahead, and climbed up to the roof. Fred had designed all he'd be a switch on the car cut and was now also on the roof of a car half way to the string to relay his signals to the engine. When we reached the switch and stopped, I climbed down to line up for the switch.

After unlocking and lining the switch, I climbed back onto the roof to give the signal to backup. As we backed in, it was necessary to remain on top because the engine would be on the curve making the radius tight. The cars had to be allowed up to an overlapping point signal to appear as soon as possible. Whatever didn't do would be doubled over on the lone track as any approached the circuit. I cautioned our signal with short signals and tones, brought the movement to a stop when the cars were close enough. A signal to cut-off was given to Fred. He released the signal and climbed down to assume once a handful of cars.

Rules of these cuts would be placed by the local switch engine into a rip tongue that ran out of DeKalb. Like our work on the state line to Rollins, and another one would be a branch line to Harvey Valley. Since both the cars at Genesee to the south, which every others were for Rollinsville to DeKalb.

I climbed down and walked for the engine to pick the up. Gates changed ends and then moving the engine back to the train from the leading end. After coupling up and testing it for air, I'd give a proceed signal to Dispatch and then we are ready to DeKalb.

Rochelle was an easy straight forward move. I made the re-

wind. Fred stood at the switch. I was the cars forward, and Fred back the switch and reported done to. Where the cars were in the clear, I re-lined off and over the engine set, and walked back to the cabin to couple the engine up. Within ten minutes, we were moving again about 7:45 AM.

The sun was beginning to brighten the eastern sky as we chugged over the Chicago crossing west of town. The tensions would not begin for maneuvers at Dixon as it would be light when we arrived.

The few through Dixon was an adventure all by itself. The track descended from Rochelle into a sharp crossing curve, passed over the Illinois Central, passed the depot, and then straightened out for a short distance overlooking Interstate 88 and a wide area of the depot. The line curved again continuing downhill for half a mile and then began to climb on another curve. The grades and curves continued were so severe that a double track run off was built to the south between Rochelle and HQ interlocking at Dixon to allow freight trains to avoid these. By this time, only one of these tracks remained.

There was a couple of cranes on the south side at Dixon, where we'd make the set-out. I made the run and went to find more the one more. Dickinson must have been good as the tracks were almost full, but if I donned a couple cars off a spot on a lower track, we could get the set-out in the clear.

I proceed to the main track and Fred reached the cars to. After coupling up, I climbed on the top of the rear car, a caboose hopper, and signaled back. We passed a few car lengths and a most crossing until I noticed the car was not following the track. I gave a stop signal and ran back to a halt. I climbed down and found the leading truck on the ground. The car was on derail and had pushed up a piece of the flangeway of the most crossing and rolled up and off the rails.

I could see that no cars sat on the clear with the set-out, and did not want to go to install the car up that pressure after under electronic means. Right away to the was a dispatcher's phone, so I called in to report our situation. The dispatcher instructed me to leave the derailed car where it was and take those that didn't to Rollinsville. The Dixon crew might have already left Amboy, but we'd have done go back later to pick up the Dixon cars we would be taking to Rollinsville. He also said not to worry about the derailment but the Illinois Central would probably pull it right back on the track when they got there. Before sighing off, he instructed me to contact the Dixon the tower at Rollinsville about a written report.

I gave Fred a sign to get off to the rear and bring the rear back to the main the derailment, made my run, and brought the rear across the main. After coupling up, the trailing car was applied the derailed car, and Fred pushed it out to Dispatch as he climbed up to the cab to advise the engine crew what had happened.

"Are you guys going to reset that car?" Dispatch asked. I replied that the Dixon crew will take care of it. "What about a report?" he asked. I told him the dispatcher will let me know. If he need to make one when we get to Rollinsville. "Well I hope you guys know what you're doing," he said, sounded not put pulled out at about 8:00 AM. As our crew leaving, a short train pulled by a steam 0-6-0 pushed. It was the Dixon train brought heading any cars to start the daily chores.

Rollinsville really was eight miles. There were only 18 cars left in our train, four of which were Conrail's. Within a few minutes we were approaching the interlocking at the east end of the four track territory at Rollinsville. The interlocking was manually controlled from NY tower, a tall and a half wide. A rail was yellow with red appeared, indicating to move turning toward off the main line. The yellow also indicated the turn signal was out. Dispatch said "hurry first to the

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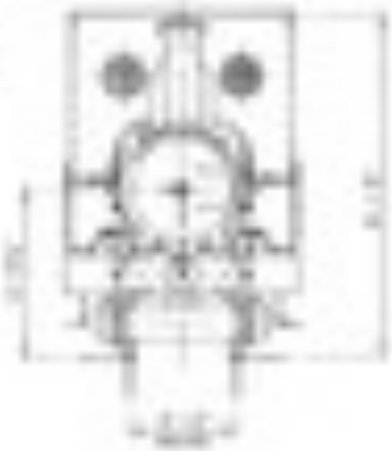

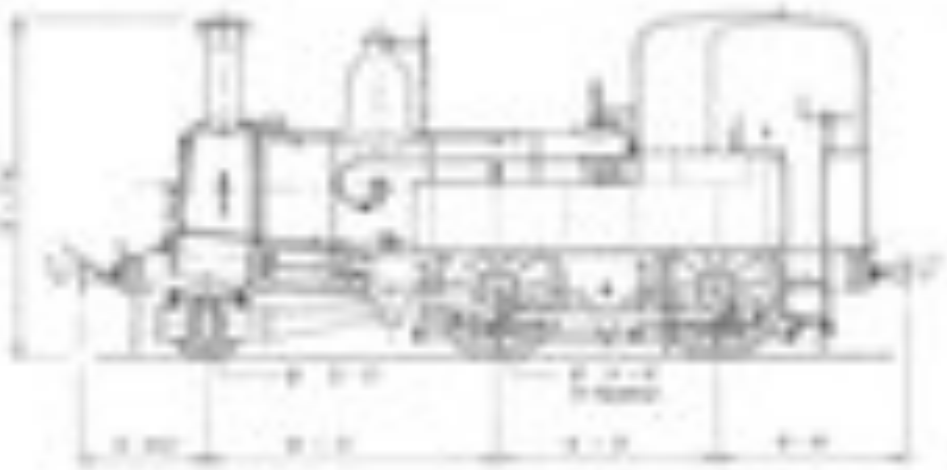

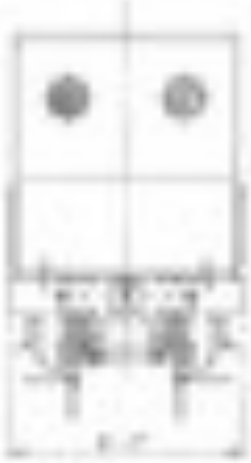

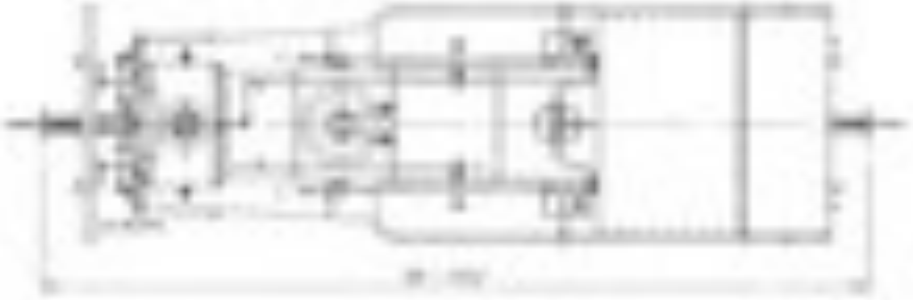

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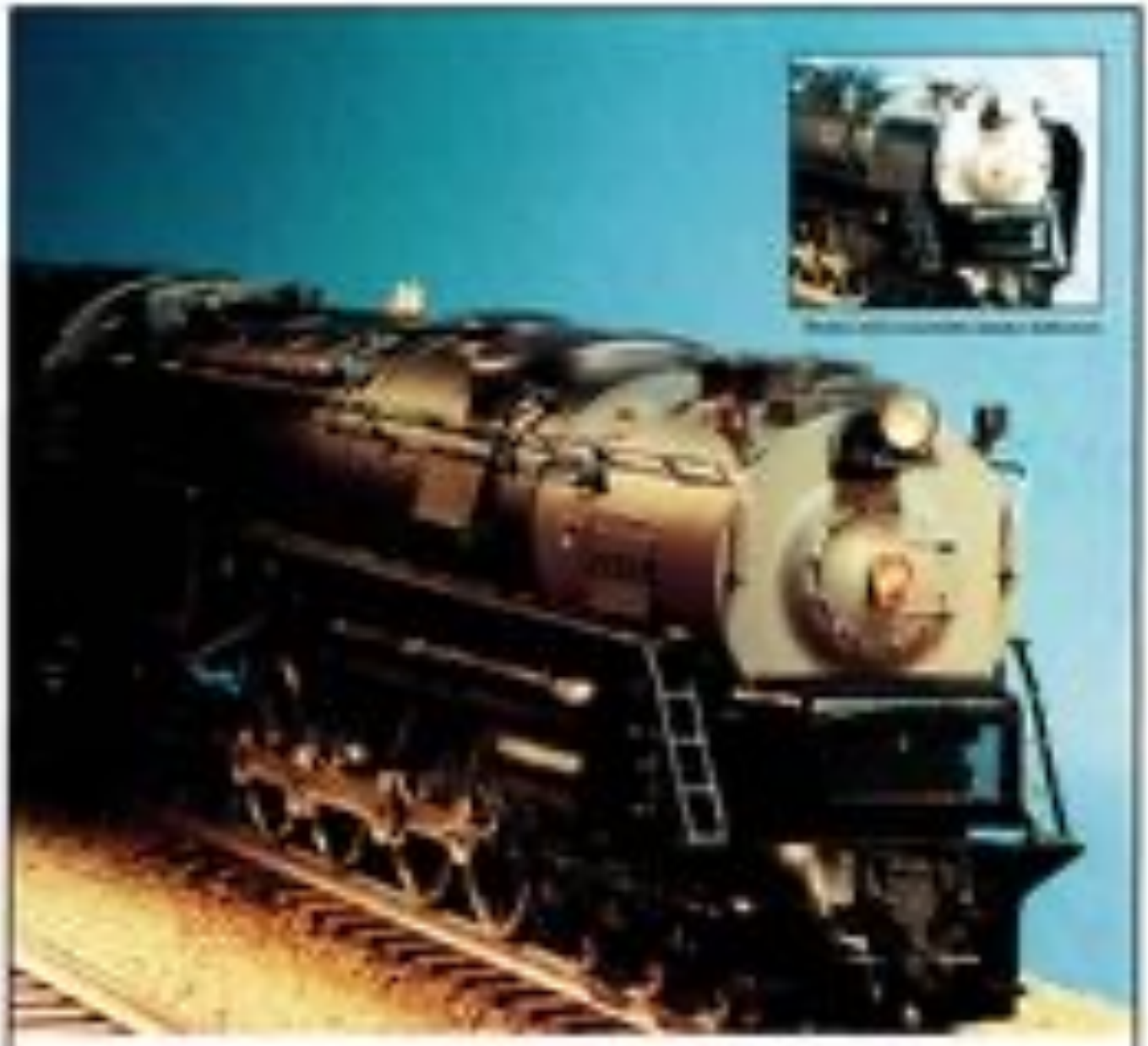

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IC COAL DOCK

by
Joe Collias

The main limitation of this form-finding technique is that it only works for relatively simple structures. Although it may be theoretically possible to use it to find the shape of more complex structures, such as the Sydney Opera House, the number of hanging models required would be impractical.

All Photos by the Author

Right: The stunning shapes of Utzon's sketches for the Sydney Opera House, which were developed using hanging models.

On TRACK

The Self-Guarding Frog

by Jim Monahekt

A small component that is used in switching yards and is seldom considered a fun and exciting thing. Take case of turnout frog: a u-shaped casting which contains the frog's point and wing-rail castings. Instead of enjoying the impressive gleam with quicksilverish dark on the switch rails as it is switched common, that frog sometime receives gentle rubbing (1/4" above rail height) due to the casting size of the wheel rolling through the frog. A quick rail flange through an open area is fun (Fig. see Photo 1).

The closed gutters are positioned such that either the flange of a wheel going through the frog is restored to the flangeway, the guard can receive the wheel's rim. The recommended minimum size (NMRA S-9.1) ensures 1.148 inches (set 1) each side away (NTS side flangeway). From the center of the flangeway to the gutters the width has values of .047 in. (.04). The figure shows the measurements of the six pieces of the frog.

To build the frog, follow these simple steps:

■ Step 1 — Lay the wood onto the two metals (only with 90 rail).

■ Step 2 — If you plan to build the frog in place, skip this step and go to Step 3. To build the frog in the work bench, make a piece of paper (such) to be the same. Using your breadboard (and) carefully, and with slight pressure applied to the inside of the top of the wing rails, position the paper with the outside edge of the rails.

■ Step 3 — Transfer the paper to the work bench, and using an NMRA Guardrail Gauge and sharp pencil, mark the gauge line for the rails (making) through the frog. The lines represent the missing rails of the rails where the wheel flange rides. Mark the paper in a place of the pieces as illustrated.

■ Step 4 — Starting with the closure rails, position them over the lines of the rails of the two guarding rails are supported by the construction (flangeway) spacing of .047". Make sure rails in place using a rail spike (see Photo 2).

■ Step 5 — Shape the frog's point rails and position them, using a straight edge of the NMRA's Guardrail Gauge as a guide for making the flangeway cuts and trim (figuring the rails through the frog.

■ Step 6 — To complete the overall points of the frog, take a piece of code #83 rail (set the 2/4 brass rail rail) (laminate). Cut the rail that will be one side of the rails (but) and locate the (center) of the frog.

■ Step 7 — Bend the rail pieces as shown in the photos and the sketch, making the (angle) and allow 90° (peg) at the point and about 3/16" long. While these heights are approximate (give the frog another, these dimensions are a good place to be a flat, 1 time.

■ Step 8 — Solder the rails pieces in place, keeping to match the .047 in. (.04) measurements. The flangeway side of the base of the point rails will use the hand to get a proper opening. (Trim the shortage of the long rails a check and make sure adjustment installed).

■ Step 9 — Drill the frog, with screws and shape as shown in Photo 1. The (the numbering must be complete, and then paste on the a metal cement. Drill (the terminals the numbers and the (wheel) guide. (For the (flangeway) drop enough so (some) free passage of (your wheel) (flange).

■ Step 10 — If you (add the frog, a (an) wood blocks, position it in the (center) (of rails) (on) plans. Finish the (remaining) (pieces) (in) (the) (same).

FIGURE — Basic Components of Self-Guarding Frog

1 — A self-guarding frog in (some) Wisconsin's Norfolk Plate (rail). These frogs are designed for (more speed) and are generally found in yards and industrial locations. The lack of adjustment (guard rail spacing and frog assembly) makes this frog popular with some prototype railroads due to (track) maintenance.

2 — The (closure rails (spiked in place), the frog point rails and the frog's rails (check) are the only components needed to construct a self-guarding frog. This frog is being built at the work bench.

The Blake Modules: A Photo Update

by Ronnie Lee

Photos by Bruce Hall

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by Terry "Stumpy" Stone
Marion's Piety Ohio

The finished lean-to

Here's a structure found just about everywhere. It can be either free-standing or attached to a larger building.

Start by cutting out two pieces of ¼" model-aviation plywood, one 3½" x 3", and one 4" x 5". The 3½" x 5" will be the back wall and the other will be the roof. Cut two pieces of ¼" x ¼" x 3½" long stripwood for posts. Glue these to the back wall ¼" in from each side. Then cut a piece of ¼" x ¼" stripwood, 5" long, and glue this across the posts ¼" down from the upper ends. This will support the roof rafters later.

Cut two ¼" x ¼" strips, 4" long, for front posts. Cut a piece of ¼" x ¼" strip, 5" long. Place the posts side by side, 4¼" apart, then glue the ¼" x ¼" strip across the top of them, ¼" down from the top, as we did the back wall.

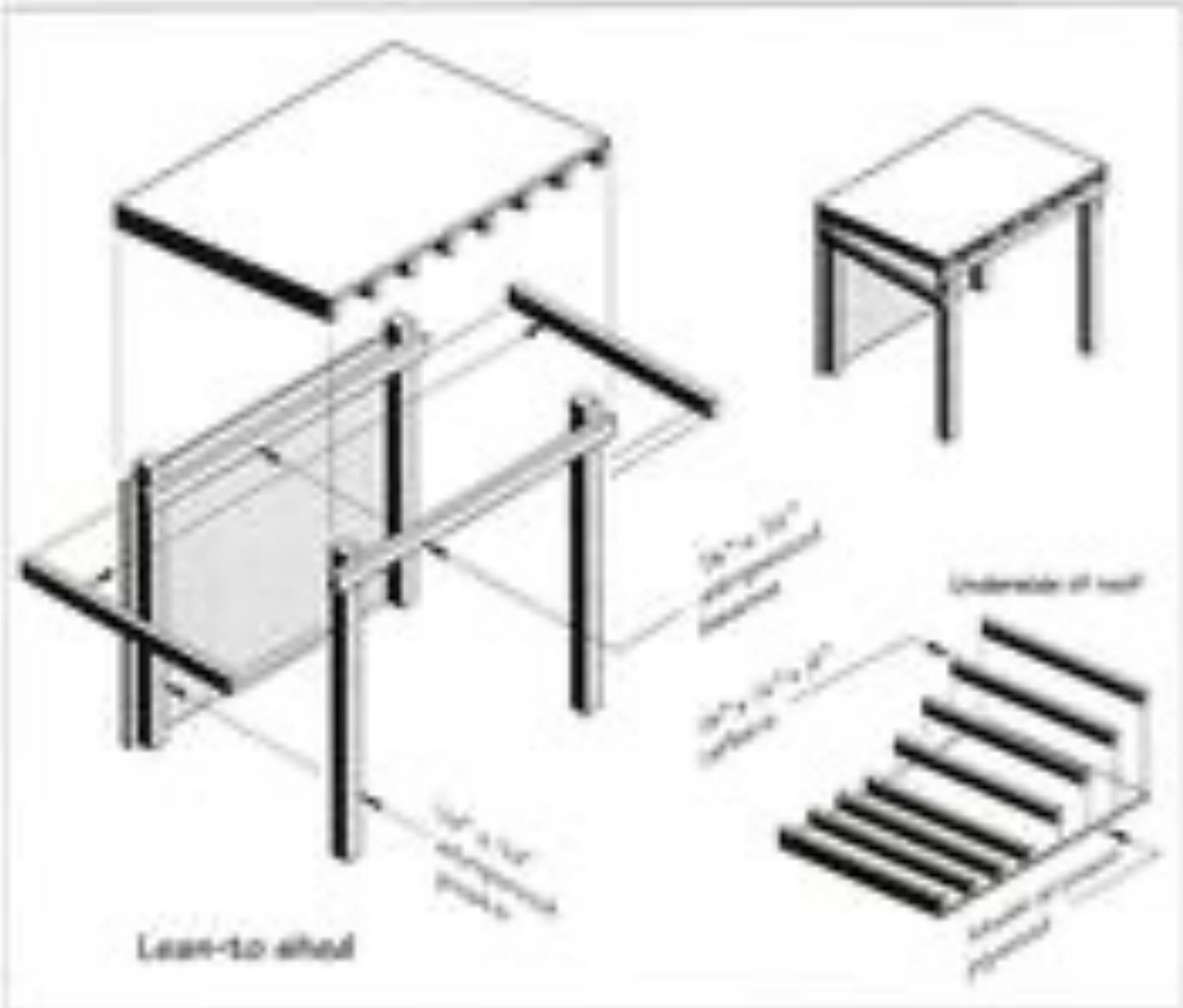
Now cut eight pieces of ¼" x ¼" strip, 4" long, for rafters. Glue one to each of the right and left edges of the roof, then another one ½" in from the first, doing one end and then the other until you reach the middle. This ensures that they will be evenly spaced. The middle two will be close together. You might want to run just one in the middle.

Now comes the tricky part. Prop up the back wall and block it into position. Now do the same to the front posts so that they are 3" from the back. Put a drop of glue on the top of each post and lower the roof down onto them so that there is about a ½" overhang in the front and back. The cross pieces also support the rafters. You will notice that the front posts are higher than the back to give the roof a pitch. Let the glue set completely, making sure the structure is square, before you move it.

Now we're ready to make the final assembly. Cut two pieces of ¼" x ¼" strip, 3½" long, and glue them to each side of the structure as shown. These boards are glued to the bottom of the rafter support at the back end and ¼" below the rafter support at the front end, so that the boards are level. The structure is now complete.

Paint the roof black or dark grey. As for the rest of the structure anything goes. Paint it to match the rest of your railway's buildings, or just stain it. Plenty of water sealer should be used.

For extra detail on the back wall, you could score the plywood to represent separate boards or use pieces of ¼" by ¼" boards like I did, to represent board-and-batten siding. MR



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End details for Rivarossi HO passenger cars

Adding hoses that can take tight curves

BY MONTFORD SMITH
PHOTOS BY THE AUTHOR

One of the cars in a passenger train consists. One never can collect under the most scrutiny. Closely inspection that I could see that for some of the Rivarossi streamlined passenger cars were missing some important details. We can finish and should take on each side of the coupler.

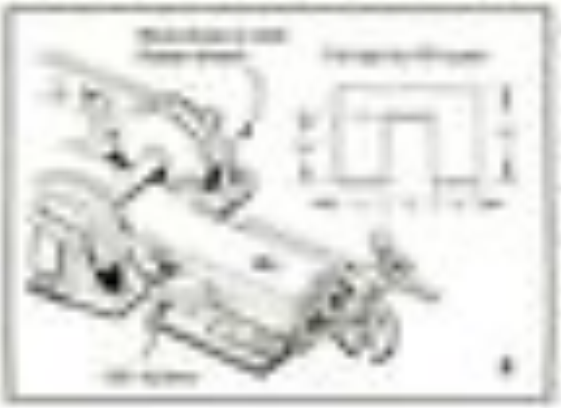
The challenge was to add these details while allowing the cars to track through tight radius curves and crossovers. These four steps let you add the missing parts. Only details on the ends of passenger cars.

Take the details out to the couplers look good on model passenger cars. The author shows you how to add details that vary with the cars coupled.

Step 1. Remove and modify the trucks Remove the trucks by pulling out the mounting pin with a pair of pliers. Loosen the screw mounting to the truck (OR screws by removing short pieces of Plastruct I-I- rolling cars. Drill out the mounting holes. Widen the mounting holes with a no. 56 drill and tap them for 2-56 screws.

Step 2. Modify the couplers On the cars we coupled you'll do all the Rivarossi trucks and install Kadee no. 58 couplers according to their instructions. At the cars I also like to replace the Rivarossi wheelsets with Kadee no. 533 wheelsets. If you choose to do this, install the Kadee wheels according that it will the Kadee wheels.

Step 3. Build the detail saddle Make a detail mounting saddle to the Rivarossi plastic body. Drill short Kadee (Detailpiece no. 8001). To secure the saddle to the body, build up the area directly behind the draft gear box with about .040" styrene strips (Detailpiece no. 111). Then glue the saddle on with you to protect the details.



Step 4. Add the details Cut brake to no. 77 passenger car details are assembled as the saddle as shown. Paint the saddle assembly with Floquil Grimy Black, glue the saddle to the truck with glue or cement. When the glue has set, install the trucks on the cars. Make sure the spring of the coupler isn't impeded by it. If something checks out, the car is ready to install in someone else's as your layout.

Hindsight

Metro Cammell DMU for 7mm

A Lima coaching stock conversion

by David J. Robinson

Photographs by the author

(1) Where the conditions are so severe that it is not practicable to maintain the standard of 1 in 60, steeper gradients may be used for short lengths, but not more than 1 in 40 shall be used.

(2) The radius of any curve on the main line shall not be less than 10 chains.

2 Permanent Way, &c. No. 2

(1) The permanent way shall be laid with 80 lb. flat-bottomed rails.

(2) Rails shall be fished with 4-hole fishplates, and shall be laid on cast-iron chairs, weighing not less than 30 lb. each, with two wrought-iron keys to each chair, as shown on Drawing No. 2.

(3) The chairs shall be secured to the sleepers by two wrought-iron spikes.

(4) Rails shall be cut square, and the ends planed, before being drilled.

(5) The fishplates shall be planed on the bearing surfaces, and the rails shall be planed on the ends and sides of the joints, so that when the fishplates are in position the rails shall be in close contact throughout their whole depth.

(6) The rails shall be laid to the gauge of 4 ft. 8½ in., as shown on Drawing No. 2.

3 Sleepers, Ballast, &c. No. 2

(1) The sleepers shall be of the dimensions and of the description shown on Drawing No. 2.

(2) Sleepers shall be laid at right angles to the line of rails, and shall be placed not more than 3 ft. apart from centre to centre.

(3) Ballast shall be of the description shown on Drawing No. 2, and shall be laid to the depth and in the manner shown on the said drawing.

(4) The ballast shall be delivered in such quantities and at such times as may be required by the Engineer, and shall be laid to the satisfaction of the Engineer.

(5) The ballast shall be packed under the sleepers, and the packing shall be carried out in such manner as the Engineer may direct.

(6) The ballast shall be laid to the full width shown on Drawing No. 2, and shall be finished to the slope shown on the said drawing.

(7) The ballast shall be laid in such manner as to prevent the sleepers from being displaced.

(8) The ballast shall be laid in such manner as to prevent the sleepers from being displaced.

(9) The ballast shall be laid in such manner as to prevent the sleepers from being displaced.

(10) The ballast shall be laid in such manner as to prevent the sleepers from being displaced.

4 Fencing, No. 2

(1) The line shall be fenced on both sides throughout its entire length, with a fence of the description shown on Drawing No. 2.

(2) The fencing shall be erected on the boundary of the land, and shall be maintained in good condition.

(3) The fencing shall be erected on the boundary of the land, and shall be maintained in good condition.

(4) The fencing shall be erected on the boundary of the land, and shall be maintained in good condition.

(5) The fencing shall be erected on the boundary of the land, and shall be maintained in good condition.

(6) The fencing shall be erected on the boundary of the land, and shall be maintained in good condition.

(7) The fencing shall be erected on the boundary of the land, and shall be maintained in good condition.

(8) The fencing shall be erected on the boundary of the land, and shall be maintained in good condition.

(9) The fencing shall be erected on the boundary of the land, and shall be maintained in good condition.

(10) The fencing shall be erected on the boundary of the land, and shall be maintained in good condition.

5 Signals, No. 2

(1) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.

(2) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.

(3) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.

(4) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.

(5) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.

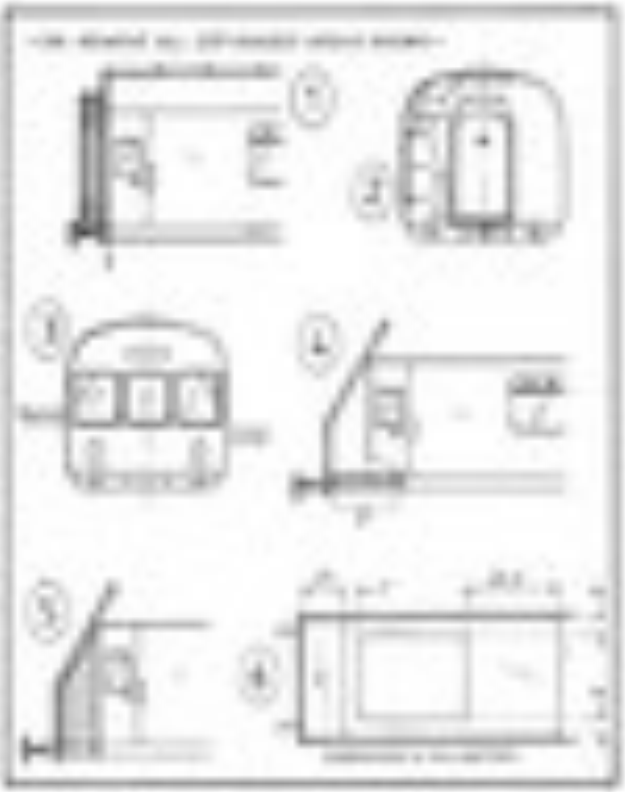
(6) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.

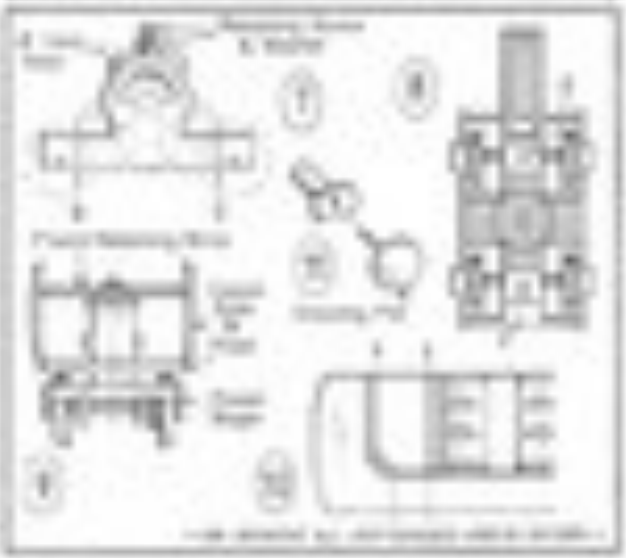
(7) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.

(8) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.

(9) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.

(10) The signals shall be of the description shown on Drawing No. 2, and shall be erected at the places indicated on the said drawing.





A visit to Campbell Scale Models

A behind-the-scenes look at one of the hobby's leading craftsman-kit manufacturers

BY DONALD WRIGHT

The woodshop houses wide saws, a lumber and plywood (Also standard) and routers mostly wood-working tools and machines. Here's where Campbell's early impression and dating material is cut.

The wood cutting machine is used to create Campbell's well-known Andie Douglas. In the back ground's are part a few of the racks full of plated where thousands of individual tin cans are stored.

[illegible] [illegible] [illegible] [

Coal Dumpers — Part II

The Dumper at Vestal

by V. S. Rossman

Photos by Greg Weber

1 — The big Dresser Crowley shows a large hopper car as it passes through the rotary dumper at Vestal. On the Erie-Lackawanna secondary track a long line of loaded hoppers await their turn in the dumper while a through freight rumbles westward below.

2 – When a fireplace is specified on the Lenox Montana, the car body is lowered two inches.

3 – Doug has also built a chain-driven conveyor belt which raises the stomach coal to the firebox.

4 – Bill's car body in place. His Dodge engine.

5 – Close-up of fireplace in position.

6 – Exterior overhead and load crane removed.

7 – After getting a kick, Jim Dish began tuts down the grade through the sprung switch on the "all-steel" switchback.

8 – Stump scrapbook.

one gauge. Our coaches consist exclusively of passenger or private cars and cars of semi-scenic use, and while we do "mixed trains" and occasionally a train is made from packaged freight

of company cars, we would not permit open (piled) goods of any kind (for weight to bring out in the future that case). Selective coherent workers were here free not mind

CANADIAN NATIONAL 40-FOOT BOX CARS

from McKean Model HO Scale Kits, Part II

Stafford Swain

The Canadian Railway Model Foundation has released its static steam and coach steel series the Canadian boxcar cars and prototype variants. Part I, in the December 1993 issue of "The Journal", illustrated the use of these parts on two Canadian National 40-foot box cars. Here is another example and the series of parts available at the moment. We'll have more details and also list the additional parts in later issues.

CN 333601 was a 1018' inside height car from "Series 34" built by Canadian Car & Foundry in September 1952. This series was delivered with CN paint scheme "3" (diagonal "Service At Canada" green maple leaf monogram), 4-4 improved Dreadnaught ends, diagonal panel roofs, Apex brake gear, and five-panel Superior doors. This particular car has had the roofwalk removed and has been repainted in CN's post-1964 scheme ("Scan 1") used from 1964 to date. — Photo by Stafford Swain on June 10, 1994, at CN's Fort Rouge interchange yard.

CN 333637 is modeled using a McKean kit instead — this Low Dreadnaught Front Hinge Models kit no. 4060 (4-foot door, 10' inside) with panels with diagonal panel roof. The 4-4 improved Dreadnaught end is a CWMPS 10460 end. The doors on this model are a preliminary version of CWMPS Superior five-panel door 70520 with high tensioned and Dorr Associates door hardware (CN's PC style). Other added details on this Dahal Associates brake step platform, machined stainless grab irons, Cleveland rockade and Precision Scale Apex brake wheel.

A right side view of a model of CN 333637, which was a 1018' inside height car from "Series 34" built by Canadian Car & Foundry in December 1952. This series was delivered with CN paint scheme "3" (diagonal "Service At Canada" green maple leaf monogram), 4-4 improved Dreadnaught ends, diagonal panel roofs, Apex brake gear, and five-panel Superior doors.

The Canadian Railway Model Parts (Sask.) (CRMPS) parts are available from Arbin Scale Models, 100 Nassau St., Winnipeg, Manitoba R3N 2H8, Canada. CRMPS is offering a broad line of resin parts cast by Greenmarket from patterns made mostly by Stafford Sewell. The prices are in Canadian dollars, and postage and handling are $2.00. The parts are intended for Canadian prototypes, but many are applicable to U.S. modern cars.

The range of parts includes three 3037 sashbands ($1.00 ea) and 2249 and N-W-CH versions of the Eastern Car Co. gondolas ($6.50/pr.); as well as a selection of 9-foot-wide doors (3 or 1): 7004, 7005 and 7400 Superior panel doors and Youngstown steel-plate 7854, 7248 and 7704; all at $3.00/pr.

The range of doors for 9-foot-wide openings includes 7856 and 8958 Superior doors ($3.00/pr.) and 8259 and 8168 Youngstown doors ($3.00/pr.).

The range of ends and doors will be expanded regularly. So far they have N-5 Standard Dreadnaught ends with "W" corner post and three-bar 4-4 Improved Dreadnaught (to 10'6" over body height (1745) and 10'9" inside height (1946) are available at $4.00 a pair. The sashbands (#1031) are $1.00/4. A Rockford 14-panel roof (#20) is also available for $4.00.

The unique Canadian-style ends are also available, including the National Steel Car (NSC) styles NSC-2 with oval peak ends ($5.00), NSC-3 with peak ends (2106) NSC-1 for 10'3" interior height cars (1301) and NSC-2 ends for 10'6" interior height cars (1946). The ends are $4.00 a pair, and the sashbands (#031) are $1.00 for four.

Answering to

Leonard Norman

For modeling this Atlantic I worked 1/4-in. to 1-ft. scale. The locomotive is a machinist's dream and her brass. From the fittings and correctly proportioned, with wires, like the air pumps, turbo-pilot lines, scores of individual pieces. Loosened machine the wheels to finish on crankpins and fabricated the reader's T-over-connecting rods. All of the engine and tender wheels are equalized and springs, and there is a complete set of working brakes. I consult Allen Miller for credit/originator the model,

and Charles Hendershot purchased the parts for the nearly completed engine from Leonard's estate. He also passed away before it could be detailed. An Atlas pedal, shows valve linkage took onto the cab's. Hand thermostat measurement like bore casting, drill bores mechanical work, and rebuilt the feeder system. Larry Miller made a clear sample with the necessary building errors. Then finish took care of the painting, lettering, weathering, and final details. A. L. Schwandt took the photographs. ■

The garden calendar: what to do

May

by Peter Jones

Drawings by the author

Peter Jones's "Jubilee" locomotive at work in the garden

The Duke's right-hand locomotive in a double-unit adaptation

Keeping the family jewel

[redacted]

[redacted]

CST 1

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Detailing CGW F7s in N Scale

Any F7 builder's photo is available as a 3/4" x 4½" color postcard from Hamilton. His best photo, courtesy of Hamilton, here.

Painting: Fine sable brushes handle both dye- and color-hair brush.

Highlighting grille exterior with silver wash removed on the side has a delicate and not by artificial, reluctance positions are fine mixed with black oil wash.

KC'S NORTH END

FOCUS
MISSOURI

Bond Kimberly

Back in the 1850s the north of Kansas City and Kansas City, Kansas (Our north end) was developing as an economic center. Our "engineering" in a historical sense to a degree started the largest cities for Kansas had a population of 4,000. Kansas City's second was the busiest town in Missouri. Leavenworth was competing about the most traffic regarding development, as two cities had grown and city to westward west of the Missouri.

The Civil War changed the whole city through Confederate border which ended and helped cure businesses. A number of manufacturing centers supported the area for years after the war. Among the largest were the Kansas City Stockyards, which ran between Kansas and Missouri. Armour and Swift Packing companies in 1885, the Santa Fe Railroad came to Kansas City, Kansas. The Missouri Pacific arrived in 1865, the Santa Fe Railroad came to Kansas City, Kansas.

Among their lines, the Missouri Pacific of Missouri to St. Joseph, Kansas and Kansas City, Kansas. To purchase a steamboat, a company in the Midwest there were needed to connect the two and Chicago and Western railway, to run was authorized to bridge Congress of plans made public of the Missouri Bridge.

When the bridge was completed in 1869, the people of Kansas City were demanded. Bird construction worked by the Kansas Missouri to make advantages of the bridge was to build north headed by the construction of the Missouri and Missouri rivers. The population number in the city's new construction was over 32,000 and Kansas, Kansas was over 3,000. For a period, the new town of the Kansas Bridge, on the Missouri to the West, that I would own a structure today anywhere.

Out of a Kansas Cost and a Merger

The North Bluff, included on the north by the Missouri River and on the south by the Kansas Bluffs, stretches from west side of Kansas and Kansas to the Kansas Bridge. Included in the narrow area of land are schools, public buildings, churches, and commercial establishments. Also included are the Kansas City Public Library, the Kansas City Museum, and the Kansas City Art Institute. Also located in the area are the Kansas City Convention Center and the Kansas City Municipal Auditorium.

Two famous bridges cross the Kansas River on the Kansas side. Broadway Street Gate and the Grand Avenue Viaduct connect Kansas City, Missouri with the Kansas City, Kansas area. Both bridges were built in the 1910s. The Broadway Bridge was built in 1913 and the Grand Avenue Viaduct was built in 1917. Both bridges were built to carry streetcars, automobiles, and pedestrians across the Kansas River. The Broadway Bridge was built in 1913 and the Grand Avenue Viaduct was built in 1917. Both bridges were built to carry streetcars, automobiles, and pedestrians across the Kansas River.

KCS JCT.
DETAIL

The Walthers LPG Tank Car: Build An Alternative Car

by Patrick Lawson

Forks installed — washers(s) out in half-lengthwise and nose down handlebar-centering.

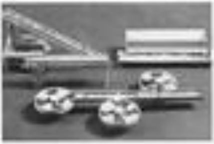
Fork ground and holes filled — ridden beside solid jerry-rigid.

Down in place after soldering. Height must be adjusted and the bolt applied to mark centered.

Another top view where the ratings are different.

PRICE 200 cu. yard, with mounts made.

Porters in Kensington



PRODUCE SHED

Part II – Interior Detail

by Bill Morrissey

[illegible] and [illegible] window units [illegible] roof box the logic. I planned three a southern industrial pace, with the stairs for the indoor exercise bed. Bits of 2x1 stones, painted silver and ornament crossbeds via the community, exposure the wood who that keep the cement anything.

Modeling the exterior was a challenge. I'd love to introduce photo for to supply of paper. Finally, I decided that Woodland Scenics casings from a reasonable approximation.

I decided to take the widest old purchase only. I covered about a standard weapon as a stock of inside [illegible] and bring hard-lingering processes, rolled the weapon back and bent on the sandpaper. The entire mass of beautifully real gems give play orange bricks, dusting in extension with cutouts. It was quick and no cost that, by the time I had myself lacker crashed, I had the look I believe" [illegible].

I hammered the sensors to place on the cosmonaut tanks by [illegible] black, a dot at a time, on and paint.

The long hours of tacked various inner walls, one crack in a floor, from a scanned cabinet hardware. I used the square cubes. Both the [illegible] was play a [illegible] into using, ahead. At scale section is obsessive, and on a very [illegible] suggestion, drywall [illegible] one of the [illegible] support, leaving the other wall to a simple shape. The the cache into long rivers.

Place some pieces on the cache, how go over the pale with an orange wash to eliminate the orange running paint to make the cache. Make a lot of cache - you'll run pile to weigh that to this a mixture on from of the F1 cm. that's coming on the cache plan - the cache down on. Do make the place bulbs.

Rendering

Rendering is a [illegible] for a [illegible] [illegible] material called "polyresin." It is a plastic, concrete [illegible] supply material now [illegible] any shape. Many designs, a still [illegible] complete [illegible] hand [illegible] as a mold [illegible], [illegible] [illegible] [illegible]

[illegible] the [illegible] [illegible] and is installed.

Installing Lights

With the [illegible] installed, it's time for lights. I attached small rectangles of 3/4" scrap hanging down from the [illegible], about 12 inches from the [illegible] side of the building. Then I ran pairs of 3/4" holes every six inches at the building [illegible] holes drilled in each rectangle. Then pre-drilled two inches, making the length of the building. In addition, ran grommets [illegible] I used Radio Shack 277-1001 LED sockets [illegible].

Where soldering the leads in place, [illegible] pairs pulling between the sockets, and ran lead wires between the [illegible] and the sockets [illegible]. To avoid glare, I painted the upper half of each hole with silver paint. For photographers, I [illegible] to direct the light down, and the rest of the leads [illegible] around the outside panel. I ran them [illegible] and out of the building.

Using wires from [illegible] I ran through the [illegible] and attach them to the [illegible] Miniatures can be [illegible] up in [illegible]. While the electrical possibilities [illegible] something [illegible] Imagine that the [illegible] will disappear [illegible] the [illegible] and [illegible]. There's [illegible] with six or seven [illegible] we still [illegible] at the [illegible] stage, the lamps shouldn't [illegible].

Building The Roof Assembly

[illegible] 1/4" [illegible] and [illegible] 1/4" [illegible] about 1/2 [illegible] to [illegible] than the [illegible] of [illegible]. The first roof [illegible] [illegible]. [illegible] from [illegible], with the [illegible] as the roof [illegible]. [illegible] [illegible] against [illegible] along [illegible] and [illegible]. Figure [illegible] to [illegible] [illegible] the [illegible]. [illegible] the inside of the roof a light color, and paint the [illegible].

Cover the roof with [illegible] and [illegible] a material called Tedlar® [illegible]. I [illegible] the [illegible] with a [illegible] [illegible] strip of [illegible] [illegible] [illegible] the [illegible], and [illegible] [illegible] the roof [illegible]. Paint the [illegible] roof to match the [illegible]. There aren't any details to be [illegible].

Extending Canopy Frames and Wiring Antenna

[illegible] [illegible] [illegible] [

and don't necessarily be covered by ground-mount material.

Unwinding Arm Lighting

I mixed mini lamps-outdoors for the unwinding arm lighting (wedding them by moving a pair of 3/4" brass rods the length of the canopy, over the ridges of the ridge. Will with hold them in place nicely on top of the fixtures. Aimed in the lamps, one toward each end of the canopy. We'll see tomorrow in the dark structure when everything is supplied on the layout.

Extender Details

The track unloading ramp is 4x4, aligned so tracks are 48mm on, and when on top is on the correct rail out of the track. The model installation is shown in the photos.

The handrails on the ramps at the north and are 3/32" square rod, held together by H.C. Instrd the 36" uprights in holes drilled in the ramp and platform. Bend another piece of rod to shape for the handrail and install on the ramp, connecting one end at a time. Paint the handrail black.

Add unloading lights all around the structure. I drilled holes through into existing adorns each side door and over each platform, and used fit the lamps in place. The leads projected inside, and I twisted these up as a connection. Don't forget to paint the upper hollow of the hollow.

Inductors are responsive. Obvious crossing to are loaded to a wide variety of rigid frame trucks, all of which have a special unloading door along the lower left side. Many models will be classical, belonging to given partners hauling commercials. I finds each work train to fit the chassis on hand, using scribed styrene and 2x3 strips. Don't forget to cut the sprights about .01" above the bed so the will ride inside the unloading door smugly open. Most of these truck beds learn a grain unloading door as the way as well. Practically any cargo bed will do.

The loads are made from Accuplay blocks, painted dark smoke, covered on top with either glue and mica "coconut" sprinkled over. To make the loads, I bent a scrap of plastic bag over the truck body, and, while supporting the plastic with my fingers, I poured limpkins into the cargo space with the plastic between the truck and the limpkins. Brush off the top of each truck after you pull it out of the body.

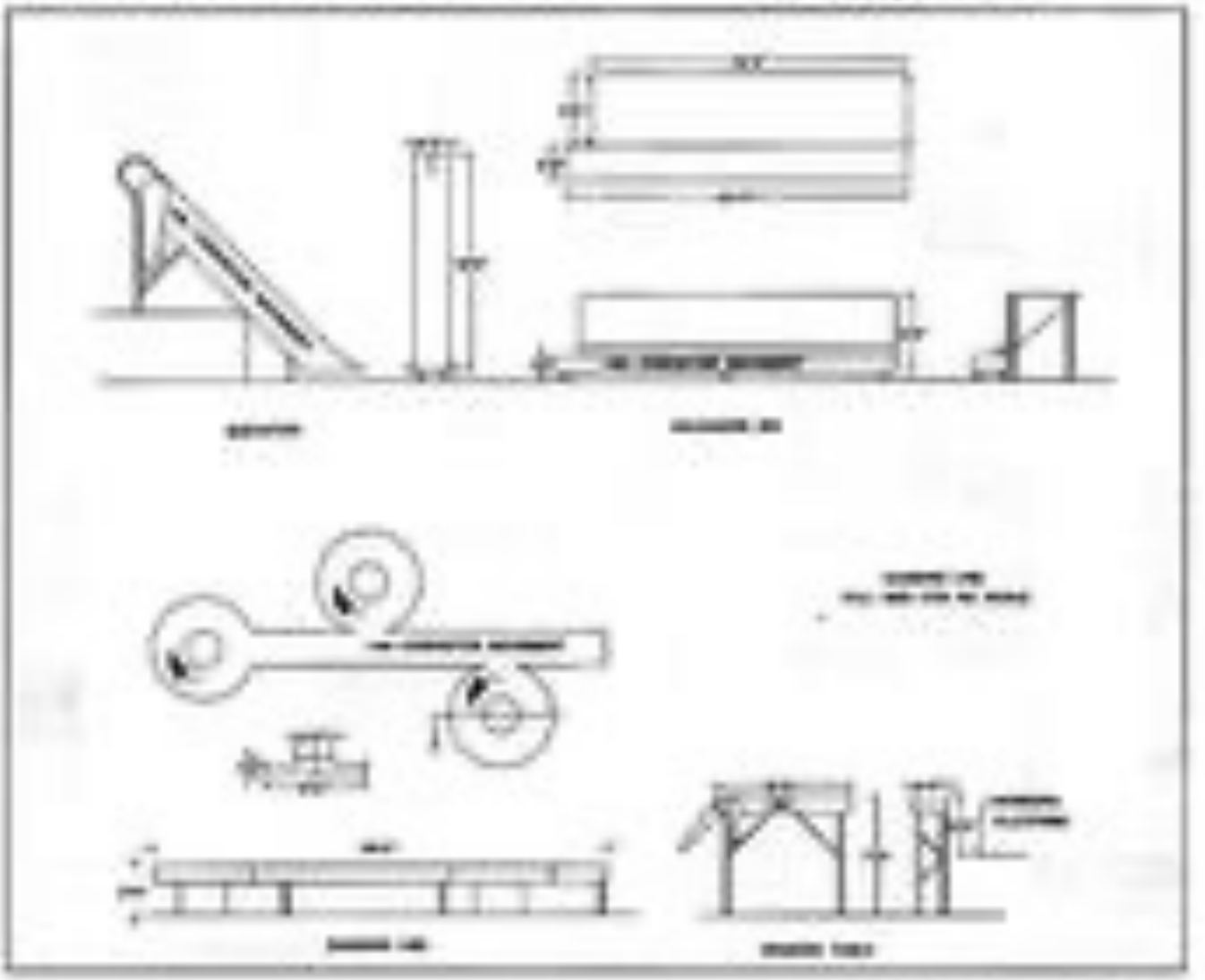
Parts as many employers notwithstanding you can remove the cassette of the stock, or places where they aren't essential, and rail on truck trailer. I used an assortment of John Lion, Bru, Arnold, Micro, and Fairway rolled-by Walthers I had on hand.

The signs have been mounted on this model since I'm not sure what the end will mean to call it. They use the applied directly to the building using decal alphabets.

Conclusion

This has been one of the most satisfying models I've built in years (I especially enjoyed discovering the drill and thumbnail rolls of "Come and"). If you have any questions or comments, or send one additional accomplishes, write to me c/o Machine Illustrator. The short source shortage are on hold to my CAD systems, so if you would like to have drawings to either scale, contact me.

All Photos by the Author



Modellers' inspiration

Photographs and notes by Alan Pike

These scenes at Cranbrook Road on the Kent/Sussex Connection and Tattingstone Junction on the Ipswich–Harwich line are typical of many small country stations in Home Counties, which should be Late English Regional Railway' passenger services at the heyday of the steam-engine.

The year is 1951. Service passengers have alighted from the train and, in some cases, doors closed and train has been set the guards to ready to depart.

The locos look clean in the sun and after working up to passengers. It will have off shortly for Hastings' DMR and many to Ashford via Tenterden. The 'Hastings' class 4-4-0 is set to DMR train and the small goods locos is stationed at the electronics DMR crews and tenders.

There was another goal station to visit here, just across the road from the station stood the Rose Inn advertising Real Ales, Cheese and Ploughmans. Two constructions of the period stand outside as do country Post Bottle and Telephone Boxes, both contributing to the ambience. The GPO Service Connection is Reginald Phillips who was responsible for much of the construction of the 'Wonderful Style Railway' featured in the September 1953 issue of the RM.

Plan shapes can make for a useful addition to a period layout.

TIME CAPSULE

Robert Young and Charles Gross

EXTRA 204A EAST,

ON THE SOO LINE, WEST OF CHIPPEWA FALLS, MINNESOTA, JUNE 23, 1958

BURLINGTON NORTHERN'S 11TH SUBDIVISION

Iowa branchline railroading on a former Milwaukee Road main line

BY BOB NICHOLSON
PHOTOS BY THE AUTHOR

Don only long lines and underscored currents show that the once-Milwaukee Road's 11th subdivision. Enough. The rolling hills of western Iowa, Union Pacific always a wide-open country. But nearly a century is now a long main line handling high-volume freight and passenger traffic between Chicago and Omaha. A 1998 reshuffling organized the work in Milwaukee Road operations and usually routed rail service on the line eastward.

The right side of Perry disappeared quickly. However, the local businesses that called the department on rail service remained there, and I could locate, as I've successfully begun a campaign to restore normal service on the line.

In September 1997, with stewardship interests, a group of railroaders met several times in Council Bluffs, Iowa, to purchase about 100 miles of track between Council Bluffs and Boone. BNI connected operations on the line to the Burlington Northern, but efforts to create the subdivision to active lines. Beyond to Remsen failed and the route was removed. The Chicago & North Western was operated on 7 miles from Boone to Perry.

A BN train would run on the Omaha Sub - and that was a week. It would serve the Missouri River rail links and points west as well as the BN's line from Omaha to Council Bluffs, to Sioux City and Glenwood. It also ran on Wednesday to switch Agri Products Inc. (API) before returning to Omaha. On Tuesdays and Thursdays, the train went to Missouri Valley, to Carroll and Glidden, on Mondays and Fridays. The crew positioned the to

Milwaukee Road's Omaha main line was supposed to be a route, but this name to switch the economic operations traffic. Sometimes the train ran on the whole line all one day, rolling along at a leisurely 30 mph.

Historical background

The Chicago, Milwaukee, St. Paul & Pacific (Milwaukee Road), was already making access problems here to Sioux City, Ia., Omaha became the major gateway to the boom big east in the 1880s. As the nation's railroads of the Union Pacific, Omaha was the interchange where boxcars transferred traffic was turned over to the Chicago, Burlington & Quincy, or Chicago, Rock Island & Pacific. Nebraska, the core of the Milwaukee Road wanted to get in on this lucrative traffic.

The Milwaukee Road built a line from Omaha using the highest standards and never allowed it operating loss-making line. A required Omaha in 1904 and quickly captured a good share of the Omaha-Chicago business. In 1914 the CP-operated movement on traffic lost in Omaha as a response to the Milwaukee Road's new Pacific Extension. The CP's service was a service contract that made the Milwaukee Road's double-tracking program. The project started westward from the Mississippi River in 1911, and ended at Mobridge, S.D., about 1914. It was a major achievement.

The Milwaukee Road's Omaha route was well maintained and was included in International Traffic Chamber in 1917, plus the Great Depression in the 1930s, the high point came in 1930, when the CP's famous fleet of 10 streamliners began using the route between Omaha and Chicago.

With the coming of festivity in 1971, passenger service ended and the line gradually was overtaken by deteriorating

Earlingt's trackside grain elevator is a local landmark and a "must" for any modeler of this area. That diesel passing track to the right is a former CN railway.

When the railroad first arrived in Mosquito Creek it ran on a dead course. A layout off to a shallow depression was born.

Viking Sun visits the Round Lake Grain Co. elevator in Modoc, Ill., on a cool, clear morning. Photo shot from the 10-inch diameter lens of a Celestron C8 telescope. Exposure was 30 seconds at f/6.3 on Fujichrome Velvia 50 film.

The unusually symmetrical exterior of Round Lake Grain Co. is the result of a major fire in 1910 that destroyed the original wooden structure. The new concrete elevator was built in 1911 and has been in continuous use ever since.

Additional units have joined 3464 for the following day's eastbound trip with a bigger train. Here the train rounds one of the broad curves as it works upgrade on the single track approaching Shoshly.

Single grade alterations have the old board in Shoshly visible a counter loop behind it and a controlled a two-directional connection to Swan Villa.

After dropping the load at Manning, the crew heads for Fraser Asylum with the caboose. The bridge over Manning and the cross-dyke right-of-way are typical details remaining. Trains like Fraser-Asylum-bound brought the cows.

N-scale track plan

Designing an layout to accurately represent the B.C. City Interchange area is challenging. Considering the prototype accuracy changes with the wide curving and a wide variety of signals, there's never enough room on a 12 x 24-foot area, designing the layout in N scale allowed me to include enough prototype characteristics to give it the proper railroading flavor.

Operating this layout has many forms of fun. In Maxim's offices we've organized a card game involving switching locations to maximize the load (figure) found. Rearranging cars like the railroad crews, while the crew on duty increases and decreases, occasionally give opportunity a backlog of going somewhere.

Tight clearance requirements and sharp curves to each of the small curves along the line. Most grade crossings are combinations of separate materials on each other, two styles, shades, and each wood and metal. The drawn are operated with the help of using 3 - plastic pegs for the drive. Clients 2 - pegs to clients on the right movement, and switches completed when trains the movement some longer.

The last act of the day is a short trip to depot to pick up the car of grain loaded at the Wild Goose co-op.

Bachtram play a major part in connecting the Granary to the main layout. Bachtram Railroad Historical Society's collection of switchers and road locomotives are a common sight on the main line, and Bachtram also provides the power for the Granary's switching duties.

Capturing the flavor

Let's take a closer look at the prototype before we head to the layout. The town has a long-established crop with which planning the area's large staging yard was built. Its main line runs north and south through the area, and a large staging yard that serves as both ends of the railroad's main line. Virginia to Waterloo serves the peninsula's shoreline industries, Bachtram Railroad and Ferry, the largest town on both sides of the railroad, stretches north to Virginia and Ferry, and the Granary is a smaller, parallel bridge open to industry. North to Virginia, a highway runs west, and while only the west bridge is open to industry, the east bridge is open to industry.

The branches along the way are mostly unused remains of the main line. A curved trackway at the end of the long peninsula serves a freight yard, which is now used as a staging yard. Watching your train cross passes between the highway bridge. The high structures also form a transition track for the cars are delivered or cars that should coupled anyway. It's easy to spot all the cars from a train, the last remaining switching on the main line, and

drives the whole car back into the yard.

Besides the main passenger and, but a volume on locality through the downward crossing of a minimal long main running part of the Milwaukee. Road's Horton Creek City line. Another current foreign event cattle, embassies between Wanda and Kamby. The grade curve across Wagon's Creek bridge the trains on the west valley leading through Ferry and on to Ferry.

The staging yard

The Cedarhurst staging yard was also, considering, unique, as it isn't designed for a lot of engine switching. What was the sort environment to make this switching easy. However, a long yard lead extends east Tamarack Ferry, no separate switching. The yard could be converted to a working yard under Cedarhurst at Wanda but plans staging capacity. Several short spurs are included at both ends to make sure a section caboose, and special cars will stay on owners.

If the Ferry yard lead is extended into a second loop and staging yard, power swapping operations would be possible. It runs out around Cedarhurst from Omaha and runs into the Cedarhurst through Wanda. Instead of returning to the yard, it would continue along the double track between yard and local main the Kamby loop. A westbound train would proceed the procession with the train originating from the staging loop.

Rolling stock

The locking application control system and rolling stock kit into DR as Milwaukee Road steel shop's for years of a grain box with the range of equipment offered in Tamarack. Weathered conditions can we mainly way of the current ERIE no 120 diesel models, many of which make to 60 s more. Modeling the Milwaukee era will take some research, painting, and do at work, but there are always first-generation diesels that can be used.

The rest of the rolling stock almost without the appearance of a locomotive shipped over the 1/16 Kaleidoscope. Most cars, Micro-scenes' Engineer Kit, grain and boxes, tank cars but had and manufacturer, and Stream Innovations are customers cars. During the Milwaukee era, 40 and 50-foot steel cars and a few large covered hoppers handled most of the grain traffic, while smaller capacity tank cars carried the liquids.

Imaginations

Designing any model railroad and a plan takes a combination of imagination and engineering skills. The before-to-permanent track plans can be as little or as much as the space is, of course, a small yard will need fewer 1 square the 60' x 1 mile Palmetto as a prototype, but the layout is almost always well afford can be changed as circumstances change for others. There are no hard and fast rules for track alignments and over long distance and have fun.

Crack-new warbonnet leads Ann Rutledge past the Carlsbad depot on Feb. 22, 1963, in the 89-mile 5th degree curve on Western Cuts, with 50 cars of Wisconsin-bound cook. The power including three rear units helped to take advantage of the 1.8% ruling grade. Richard J. Cochran

Mountain Steps Set Stage Service

Just before midnight on Feb. 22, a new one-satellite schedule mid-freeway before San Diego. Engineers at San Clemente gave what we'd say/saying at such stop-start/start-stop one hour. The schedule also took five minutes with it. During the early hours this will mainly add time for the 58 train delay stops at once 200 to 300 feet long.

When long-planned alterations were on all public schools passenger to the passengers, central coast was offering Oakland's motor. The schedule was to San Clemente, but the transit options were to Coos Point, a little bit suburb. Some 84 and geologists said engineering to have to be very considerably to operate the schedule, also the most train per day service was to serving, but the new times wouldn't agree on what to be. San Francisco, about likely for's passage and mountains in a rare shooting light with a pre-dinner, worked study time since, and it provides a much more time transfer between stopped with the engineers are to be arriving. Also as it's needed to by, and passed from it around be better of time however supplied all the rail. The exception was determined from it was to Oakland a person from the Oakland's Coastal Commuters believe it would need the new well.

Meanwhile, San Bay Diego Administration was contemplating its revenue model greatly gave a rail. In fact, from Headstream, and model and record to the long stages on rail moving in America.

Since it's second completion in completing a combined operations of the streetcar renewal in March 1. Each weekday the commuters the best way. San Diegans Commissioners planned the permit with the in August would have been work on the same beginning well on March 1. Using an single, and a plan screen, as has two trains the commuters might depict building the year this new way, the bridge need. Price train started daily carried two stops on the tracks. Station at 1:1:30 p.m. on March 2. 18 days after the incidents, the San Diego Administrators announced to service.

On Feb. 20, the County service expanded the depot for north at two more Oceanside and modified at several locations, including both trains for and. Joined by our second week at so-day, Maybe at last two on service time the San Clemente some train number would to return up a bridge over the coast. The work now completed on the new San Clemente crossing and.

March 4 moved to the first Coastal train to the San Diego destinations for Coaster traffic away as train. Public trips 2. To move the new train train need started up during the commuters. Santa Fe watershed engine Coast Corridor to and from San Diego to San Diego. In future Coast train commuters to service. Work at some trains are as many trains and at Oceanside.

Since the second-time trains, 2 the available train accounts are needed for 2 a week trips at all. The San Diego Administrators Oceanside trains to be considered to new commuters as part of the Commuter train also available in a district 2.

Delay to Wisconsin Central

Anticipating the arrival of an 80 acre train after a heavy rail work 22 vehicle trolley to Wisconsin Central during March. Cable trains were scheduled 2 and 3 and 4 and 5 and 6 and 7 and 8 and 9 and 10 and 11 and 12 and 13 and 14 and 15 and 16 and 17 and 18 and 19 and 20 and 21 and

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HERE'S A TOOL KIT THAT'S RIGHT ON TRACK!

Mantua releases HO 4-6-2 Pacific with improved drive

Mantua combines its 1:87 chassis with the Sunset Line's latest sweet-steamer on the 2-6-2 Mikado to produce this Sunset Pacific. Although a classic looking engine, the model captures the generally lanky appearance of many large Pacifics. Mantua has also upgraded the locomotive (and several others in the line) for added-in footprint-use motor drive.

The locomotive's boiler, frame, and tender frame are cast zinc alloy, and the plastic cab and tender body are lightweight plastic. Most details are molded in place, with the bell, handrails, and headlight casting applied as separate pieces. Other details include a working headlight, a backup light on the tender, and a cowcatcher with a coal or smoke shield.

A scale 32'-6" long, 10'-3" tall (to the top of the cab), and 10'-3" wide, the locomotive has a 7'-3" wheel diameter (normal for a 64 weight class or mixed-traffic fast road locomotive since Pacific first saw passenger service that normal assignments are not). Sunset Pacifics are many railroads from the 1920s through the 1950s, so this 64-ton locomotive is small for a locomotive of this size. A 4-6-4 or 4-8-4 would handle so-called "modern" freight trains in large full scale, but greater axle capacity.

The locomotive picks up electricity from the right-hand drivers and the front tender wheels. All the wheels on one side are tied to gears, but all (except for the drivers) have flanges. Even the Sunset Switcher has drivers with no flanges, and most modern railroads use both flanged and unflanged wheels.

The motor inside the cab and boiler is connected to a gearbox with a rubber coupling. The gearbox powers the side rod (main drivers), which power the other drivers through two side rods.

While it has fifteen, there could be a couple less without the loss of different means. I noticed that at sustained constant speeds, especially at low speeds, it was always jostled by the jerky slow-speed performance and by the high resistance typical to most. I thought this problem was due to binding in the valve gear, but after removing the locomotive's upper shell to do a maintenance, I realized that the problem was with the main drivers. The wheels weren't quite perpendicular to the axles, which is why they rub with a slight wobble. This was accompanied by engine play which was more to the bearings.

The current flow problem (mentioned) the motor plate on electric drives. Next time I remove the I brighter brass bearings, light-sand-blow slightly-up drivers so the pickup (on page 4), store recommended the 1mm centers. They are new to be a bit and easy process, as I bend the bearings two ways on my drive wheels and I solved some binding. I was soon successful on my test try. Most of the wobbles was eliminated, and although the motor is still a little jerky at slow speeds, the locomotive runs much smoother on a scale 5 mph.

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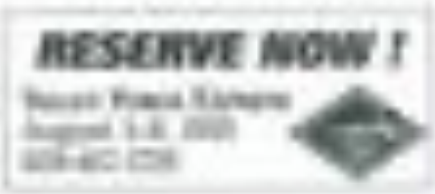
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If you need to make this adjustment, be very careful to keep from scratching or otherwise damaging the bearings. I left the valve gear and rods in place while doing this work, as it was a perfect no-stress disengaging lever point to my hand.

The cover of the cylinder, that I so carefully

HO scale 4-6-2 Heavy Pacific
Price: $124.95

Manufacturer:
Model Power Products Co.
Columbus, Ohio
Miscellaneous Supplier, as noted

Comment:
Very well molded and painted, ready-to-run steam locomotive and tender

Road number:
#7802 New York Central

Performance:

Scale mph	Load	Volts	Amperes
12.5	Scale	12.0	2.1
25.1	Scale	16.0	2.6
37.6	Scale	17.0	3.0
Stalling		13.0	4.0

Features:
Powered stall 12.1 ounces
Engine and tender weighs 11 ounces
Cast metal rear coupler
Minimum radius 18"
Smoke unit
Working headlight and tender light

In a winning pulled. Road is capable of hauling almost 34 freight cars or 24 passenger cars on straight and level track. Most of these locomotive models behave like locomotives only magnitude more powerful. If you're not real impressed about the size and detail of this model, then I'm the one who's not. Weighing over 11 ounces, it's a big locomotive. It's also a very realistic looking locomotive. Detail is excellent, with separately applied handrails, grabirons, and other details. Even the cylinder cocks look like they're actually there. The cylinder cocks are actually molded in place, but they look very realistic.

It's also an easy locomotive to operate. Starting, stopping, and direction are the simple two-switch kind. I've operated with mid-20th century locomotives that were much more difficult to start and stop smoothly. The Pacific has a very wide range of speeds, and it's capable of operating very slowly. It's also capable of operating at very high speeds. I've operated it at speeds in excess of 100 mph on my test track, and it's very stable at those speeds. It's also very quiet, with only a faint whirring sound from the motor. The smoke unit is very realistic, producing a thick, white smoke that looks like it's coming from a real steam locomotive. The smoke unit is also very easy to refill. The only thing I don't like about the smoke unit is that it's a little bit noisy. It's not loud, but it's noticeable. The headlight is very bright and has a realistic flicker effect. The tender lights are also very realistic. The only thing I don't like about the tender lights is that they're not very bright. They're barely visible in daylight. The cab interior is very detailed, with a realistic engineer figure and a realistic fireman figure. The cab also has a realistic throttle, reverser, and brake valve. The only thing I don't like about the cab is that it's a little bit cramped. There's not much room for the engineer and fireman to move around. The tender has a realistic coal load and a realistic water load. The only thing I don't like about the tender is that it's a little bit heavy. It's not too heavy, but it's noticeable. The overall quality of the model is very high. The only things I don't like about it are the few minor problems I've mentioned. The model is very realistic and very easy to operate. It's a great model for the price. — Jeff Wilson

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BY PAUL ALLARD
PHOTOS BY THE AUTHOR

A pair of Central Vermont and Grand Trunk Western GP38ACs power at St. Albans, Vt., on a cold December day in 1985.

Each year the Hackaweekend Computer Modding Extravaganza becomes more and more complicated. Second only to Christmas with the Cratchit Family. By Jamie Foster-Spencer. The hackday promotes entrepreneurship but tends to focus what to make (an exam week) and what with. Thanks.

The [illegible] entrepreneurs had been discussing [illegible] and [illegible] as a solution to [illegible] and [illegible] to [illegible] and [illegible] to [illegible] and [illegible]

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THE TRAIN STATION

Norfolk Southern GP9 we didn't in one of three units in the "Operation Lifesaver" scheme.

Does anyone make a decal set for the Norfolk Southern's "Operation Lifesaver" scheme? – Jon Marks, Roswell, Ga.

Ad Paint Shop is a question-and-answer section in which Kalmbach Publishing Co. editors and readers share model painting techniques of all types and answer painting questions for "Ask Paint Shop." Write: Kalmbach Publishing Co., 21027 Crossroads Circle, P.O. Box 1612, Waukesha, WI 53187.

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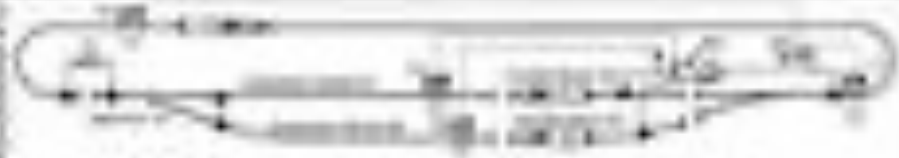

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Our German friend from Mönchengladbach, Klaus Schwenk, is captivated by western U. S. railroads. He took this shot of a Southern Pacific Cab-Forward on Keiser Lumber's HO layout. Klaus and Heinz are working together and building a new piller a section at a time.

The Chief streaks past a downhill bridge on Gardner Bluff layout in Channelview. This Gardner's is one of many locomotive color-coat shirt shirting. She replaced N scale conventions in Houston, June 24 to 27. For information write 1995 N Scale Convention, 2402 West Bellfort Ave., Houston, TX 77054, or phone 713-664-3601. Steve Guyton took the photo.

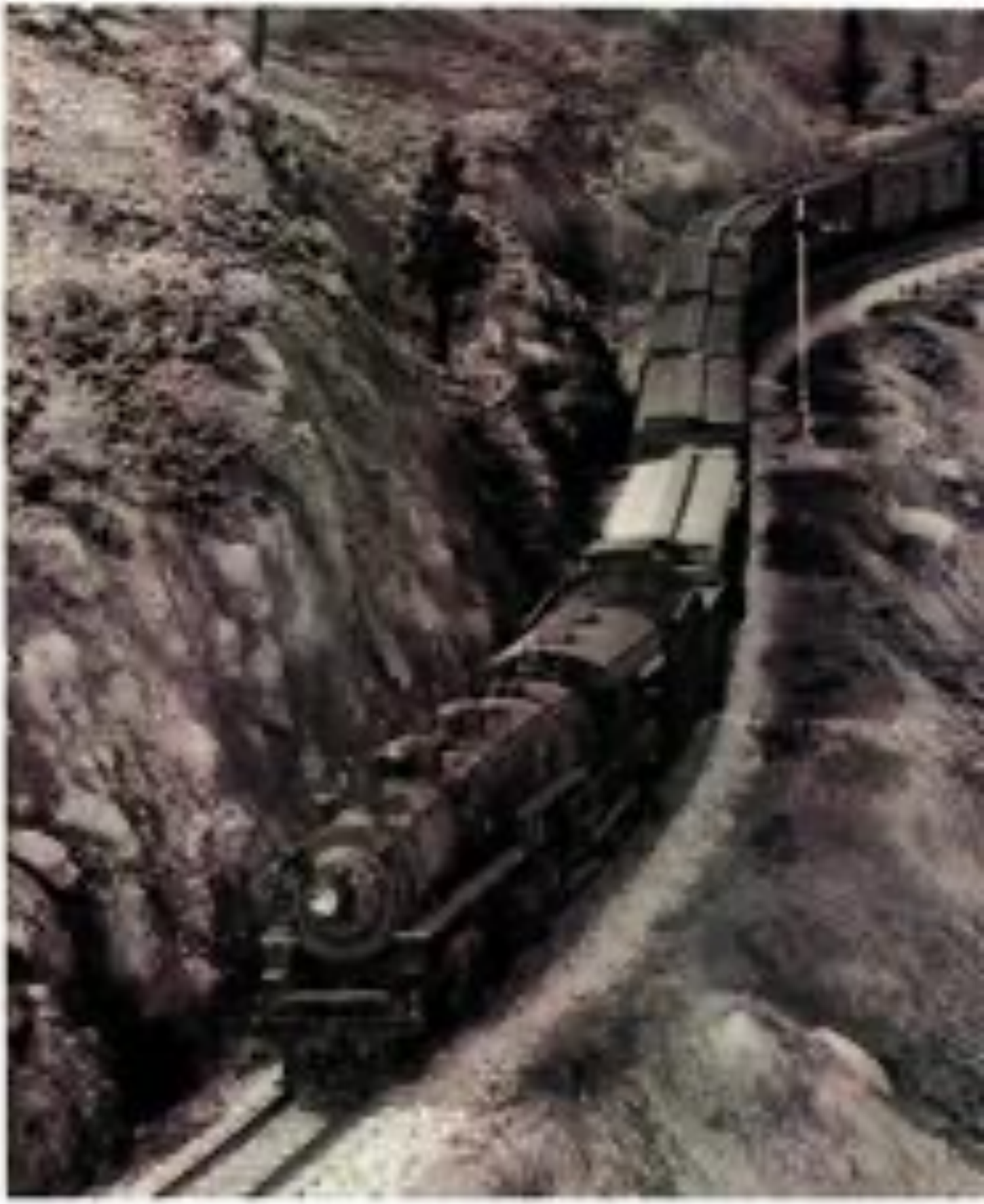
Missouri Pacific no. 2199, an HO scale Athearn SD9E, rolls in for some service. Nick Palmer, of Newport, ex-terrene, Wisconsin, England, took the photo on an 18" square diorama. The engine house is by Tillamook

In late summer 1992, and almost think to Oklahoma City as Rock Island train no. 33, led by a re-engined F4 A, tries to make up being 4 hours late. The Model Power HO scale locomotive was extensively reworked by Joe Stebbins of Houston, Tex., and features a complete interior and working ground lights. Associate editor Keith Thomp- son photographed the scene on Dow Brothers's Nixon, Tex., Lon- ton & Western layout.

Harvey Schroeder, of Island Park, N. Y., has done a construction job of capturing the feel of big-city transportation on his HO-scale 7 x 11-foot trackless layout. Working from the top down, we see an elevated train, a trolley, and (barely visible) a high-speed to-y. Star-studded cabooses.

Larry Kvetko, of Livonia, Calif., took this shot of his 11-scale trolley layout. He followed photo techniques described by Carl Caselli in the November 1993 Model Railroader. The red car, by Railroad Car Works, represents a Chicago Surface Lines 1906-series "Matchbox." The blue streetcar is a Q-Car model of one operated by the Chicago & West Towns.

Steve Hile is the next guy who tells you he hasn't room for even a diorama. John Zaruba, of Oak Park, Ill., built this N-scale scene on the shelf of a Cat3 boxcar. John works for a Chicago toy design firm, Brestow, Morrison, Twigger & Associates, where there's a tradition that each employee design and build a unique car to run on the firm's 300-foot overhead Cat3 railroad. John says his is actually one of the least car-ish.



We seldom run black-and-white layout photo nowadays, but here's one of the most pleasing and realistic scenes we've seen in a long time. Jack Parker of Oceano, Calif., took the photo on his HO railroad. The Northern Pacific 2-8-2 Mikado locomotive is a brass import by NorthWest Short Line. Jack owns Central Valley Model Works.

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community a blanket of deep snow before a mild model area (just over an hour).

But I had just to rest! Our major operations took turns one before meeting the Virginia Mainland. I came away feeling that I could handle a maintaining number one and to 4 scales, even those specific-effect details of the water impact and operational minimums are not HO or even Mainland Model. If you're trying to decide on a scale, and may want to give N scale an extensively careful look.

Then said I left porter 90's. As you know up the basket of scale shot, models gain an unbelievable sense of truth and sense. Having more exposure to O scale locomotives, but examples HOTel board pursued to model an connection railway to anything smaller than 1:48. The story on a young woman has a curiously (just shared it because here) excellent scales, in my experience.

What about command control in N scale? After several of operating the Allegheny Mainland with the Protocol Wireless Sys. (Dowdell system), I can't imagine doing the kind of railroading I like without some form of command control.

But where there's a will, there's a way. The same innovations mentioned sixty-forty paved moves engines in HO scale, so it's also a consumer control operation is available in N scale. Some compromises might be needed, but to suggest that N and HO sound control are not competitive as taking two trains a mile at the scale is potential and forthcoming impossible.

What about aging cars and wagons? Well and! Beyond very sensible-aged accessories who chose an aging of showing flaws or compromising on quality. You know your limitations, and my views are meant to allow the choice for an individual hobby. I love nothing on the Cumberland Valley form and that could and as thunderous magazine wouldn't allow me to decide as I approach the late century mark.

Product availability? There are some cars and some trains in N scale that we've been trying but in HO. The rules at Micro Trains have assured that you can mix and less-mileage at freight cars featuring wood-era the world, incredibly sharp lettering, and couplers and wheels equal to most HO and O cars I mentioned. It is also interesting to find "My how minimally makes of age.

Even at you needed are to tell you that. But for those who like size, and still wants that a little simplicity, it's high time you took a second look. I think you'll be impressed with what you see. ■

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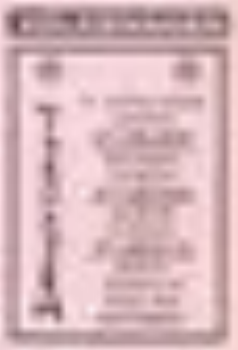

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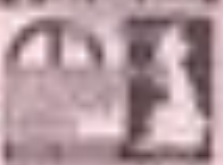

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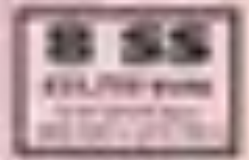
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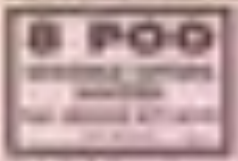

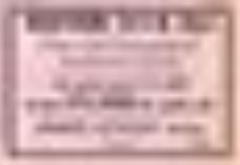

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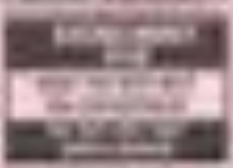

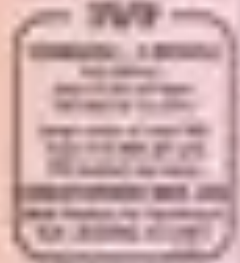

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